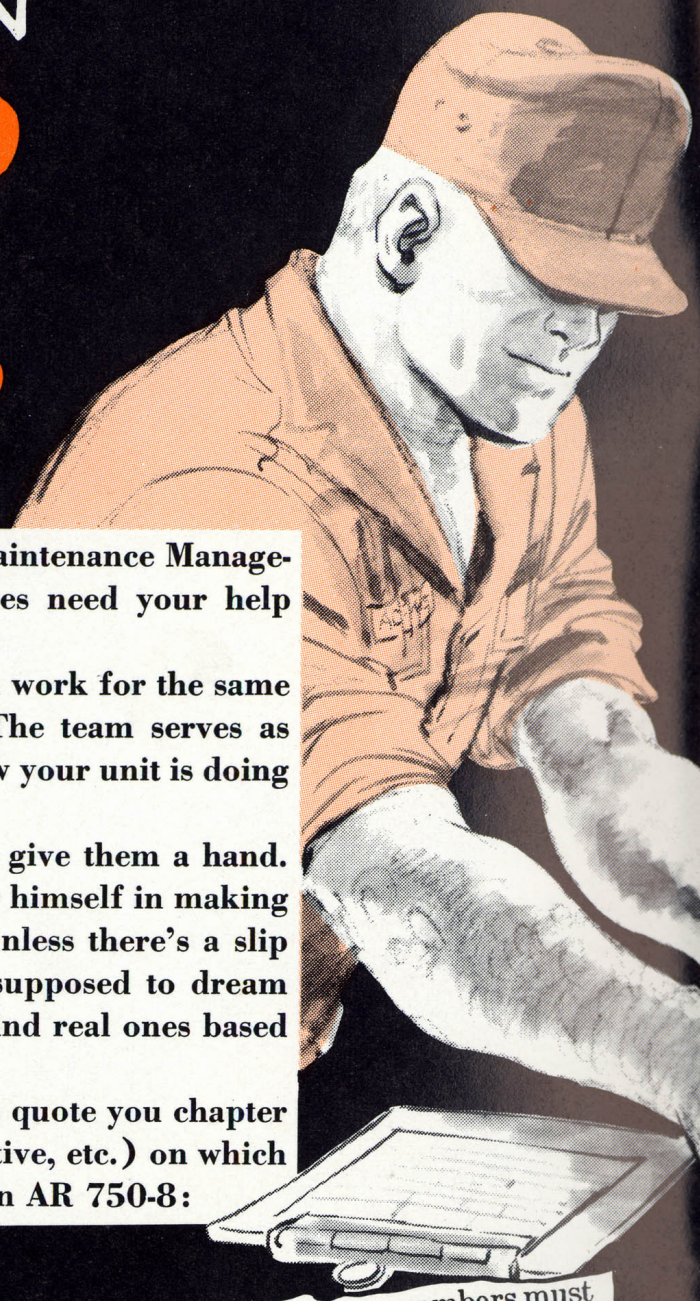
Issue 202
PS
1969 Series
THE PREVENTIVE MAINTENANCE MONTHLY
WE SHOULD HAVE DONE AN AFTER-OPERATIONS CLEAN-UP!
Will Eisner

THE CMMI MEN NEED YOUR HELP

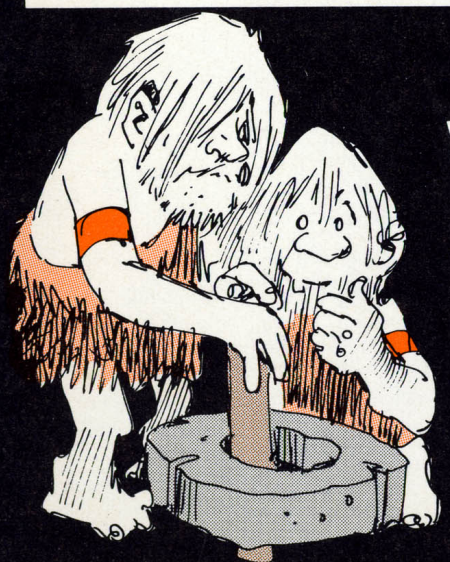


That's right . . . the Command Maintenance Management Inspection (CMMI) team does need your help to do a good job.

After all, the CMMI team and you work for the same boss—your commanding general. The team serves as your CG's "eyes and ears" to see how your unit is doing with maintenance.

So, welcome the CMMI guys and give them a hand. Since they represent the commander himself in making an inspection, they won't gig you unless there's a slip in your maintenance. They're not supposed to dream up reasons for gigs. They have to find real ones based on official directives.

This is why the CMMI team has to quote you chapter and verse (TM, AR, command directive, etc.) on which they base a gig . . . just like it says in AR 750-8:



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19. Technical assistance. The inspection team will instruct unit personnel in the proper performance of maintenance responsibilities when such assistance does not interfere with the inspection schedule.

— AR 750–8

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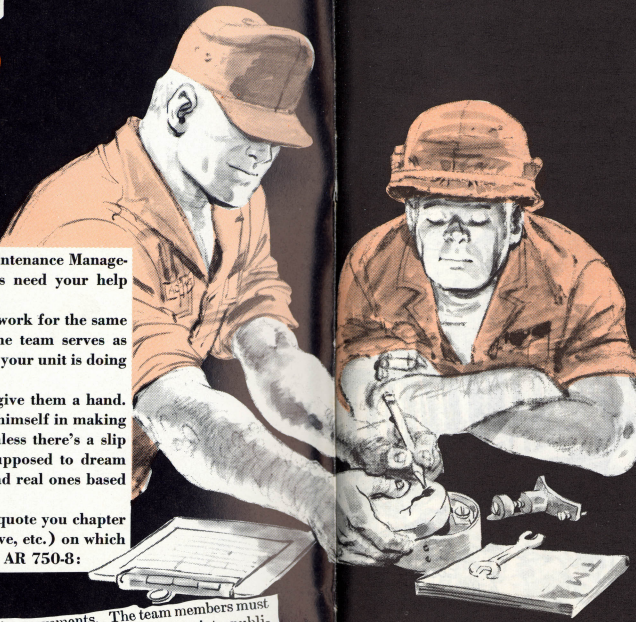

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Your commander wants you to have the best maintained (and best fighting) equipment in the Army. You do, too. Right?

PS

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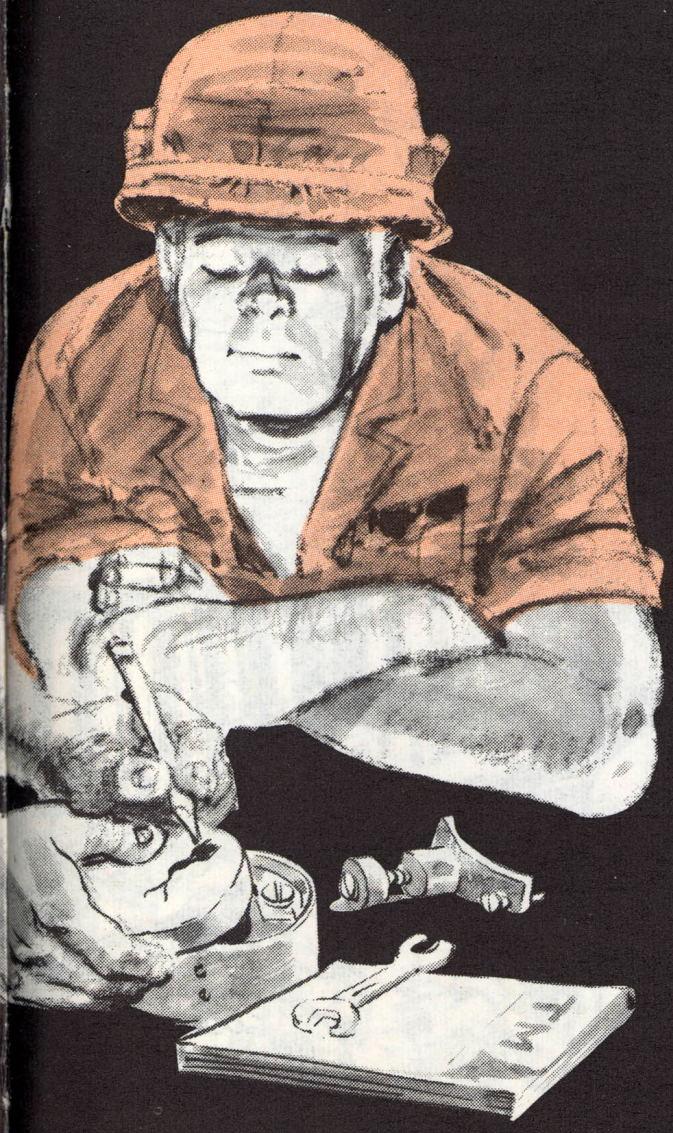

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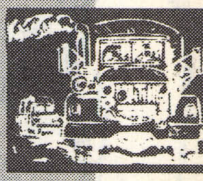

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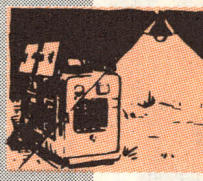

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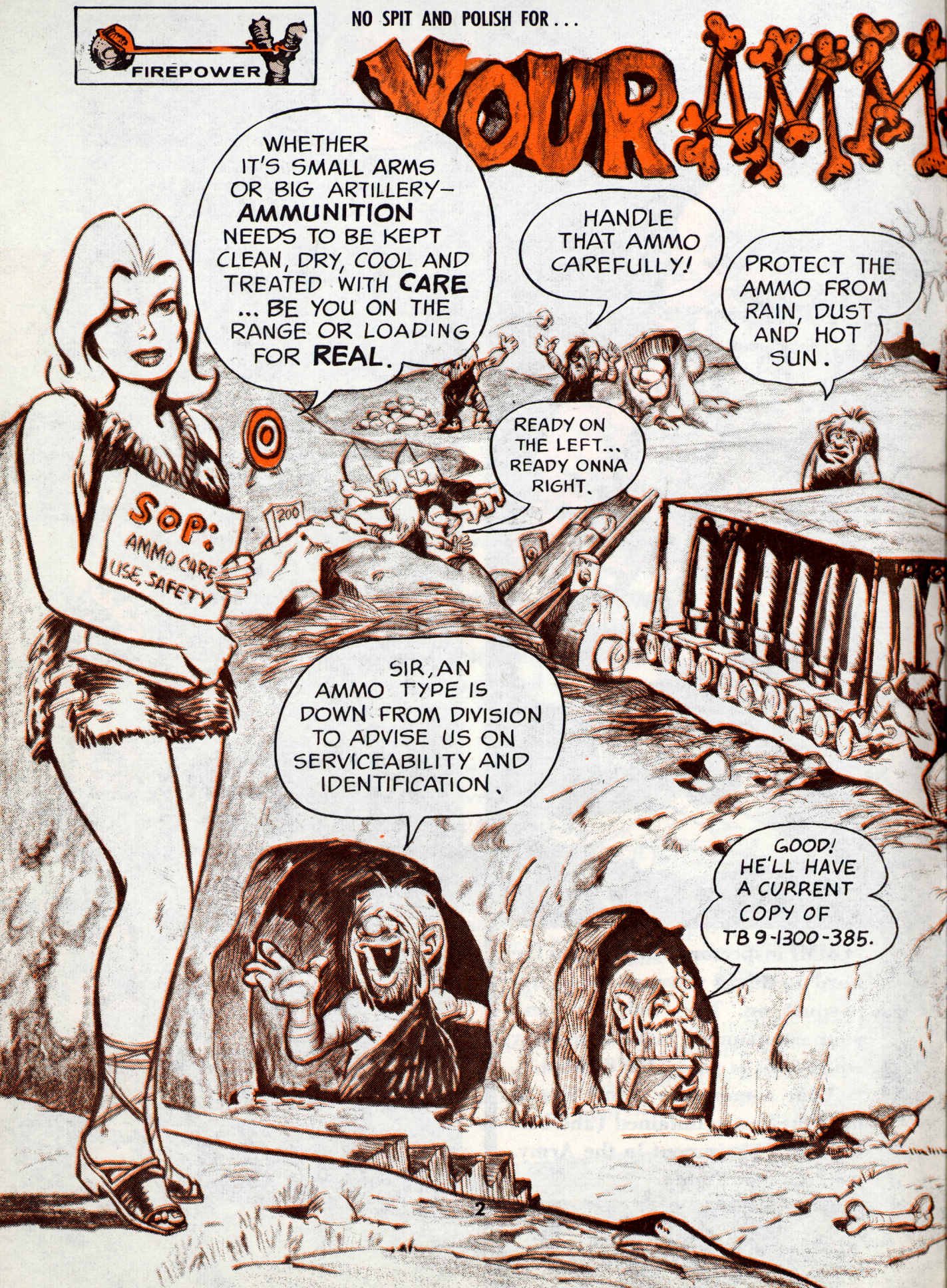
FIREPOWER
NO SPIT AND POLISH FOR . . .
YOUR AMMO
WHETHER IT'S SMALL ARMS OR BIG ARTILLERY— AMMUNITION NEEDS TO BE KEPT CLEAN, DRY, COOL AND TREATED WITH CARE ... BE YOU ON THE RANGE OR LOADING FOR REAL.
HANDLE THAT AMMO CAREFULLY!
PROTECT THE AMMO FROM RAIN, DUST AND HOT SUN.
READY ON THE LEFT... READY ONNA RIGHT.
SOP: AMMO CARE, USE, SAFETY
SIR, AN AMMO TYPE IS DOWN FROM DIVISION TO ADVISE US ON SERVICEABILITY AND IDENTIFICATION.
GOOD! HE'LL HAVE A CURRENT COPY OF TB 9-1300-385.

FIREPOWER
NO SPIT AND POLISH FOR...
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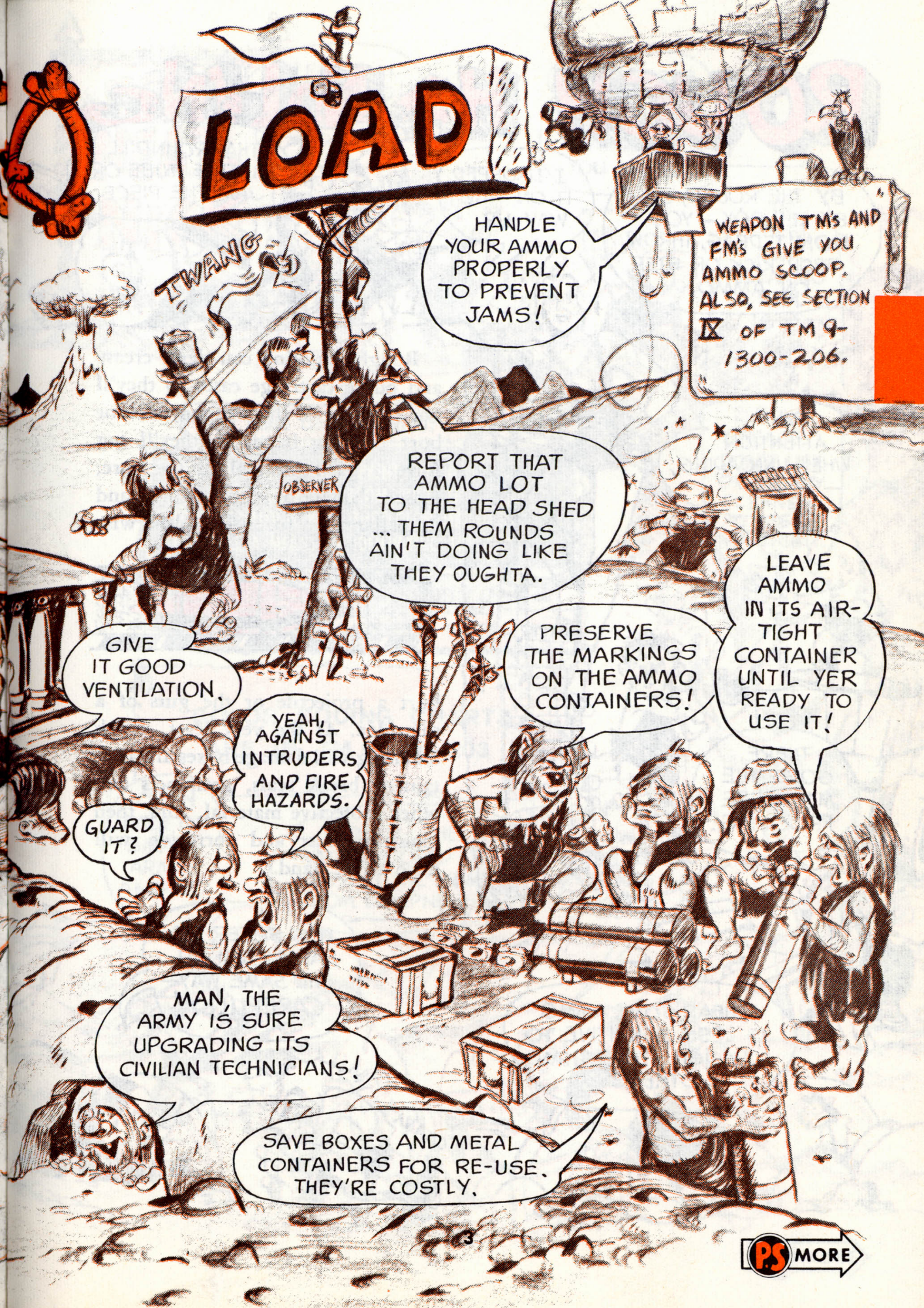
HANDLE YOUR AMMO PROPERLY TO PREVENT JAMS!
WEAPON TM's AND FM's GIVE YOU AMMO SCOOP. ALSO, SEE SECTION IX OF TM 9-1300-206.
TWANG
OBSERVER
REPORT THAT AMMO LOT TO THE HEAD SHED ... THEM ROUNDS AIN'T DOING LIKE THEY OUGHTA.
GIVE IT GOOD VENTILATION.
YEAH, AGAINST INTRUDERS AND FIRE HAZARDS.
GUARD IT?
PRESERVE THE MARKINGS ON THE AMMO CONTAINERS!
LEAVE AMMO IN ITS AIR-TIGHT CONTAINER UNTIL YER READY TO USE IT!
MAN, THE ARMY IS SURE UPGRADING ITS CIVILIAN TECHNICIANS!
SAVE BOXES AND METAL CONTAINERS FOR RE-USE. THEY'RE COSTLY.
PS MORE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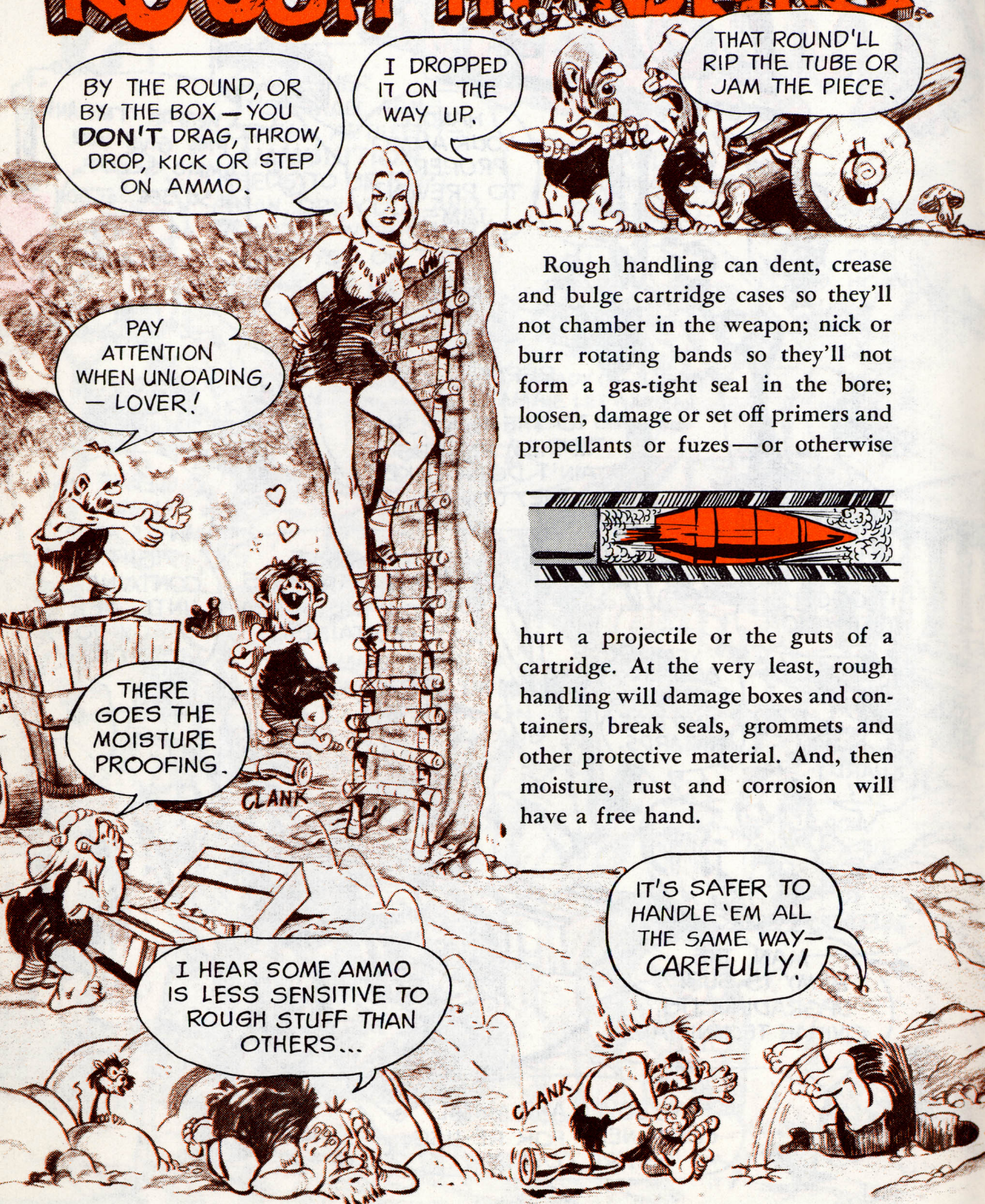
ROUGH HANDLING



Rough handling can dent, crease and bulge cartridge cases so they'll not chamber in the weapon; nick or burr rotating bands so they'll not form a gas-tight seal in the bore; loosen, damage or set off primers and propellants or fuzes—or otherwise

hurt a projectile or the guts of a cartridge. At the very least, rough handling will damage boxes and containers, break seals, grommets and other protective material. And, then moisture, rust and corrosion will have a free hand.

ROUGH HANDLING

BY THE ROUND, OR BY THE BOX—YOU **DON'T** DRAG, THROW, DROP, KICK OR STEP ON AMMO.

I DROPPED IT ON THE WAY UP.

THAT ROUND'LL RIP THE TUBE OR JAM THE PIECE.

PAY ATTENTION WHEN UNLOADING, — LOVER!

THERE GOES THE MOISTURE PROOFING.

CLANK

I HEAR SOME AMMO IS LESS SENSITIVE TO ROUGH STUFF THAN OTHERS...

IT'S SAFER TO HANDLE 'EM ALL THE SAME WAY— CAREFULLY!

CLANK

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BE A NEAT-NICK

CLEAN THAT ROUND, GLUG! IT'S MUDDY.

DON'T SCRUB OFF THE PROTECTIVE COATING WHEN YOU CLEAN IT!

THE BEST AMMO CLEANING TOOL IS A CLEAN CLOTH AND ELBOW GREASE. DON'T USE OIL OR ANY CLEANER-TYPE MATERIAL!!

KEEP AMMO CLEAN AND READY TO USE

AMMO IS COATED WITH PAINT, VARNISH, ETC.... TO PROTECT IT FROM RUST. THE COATING, ALONG WITH THE COLOR MARKINGS, PROVIDES A MEANS OF IDENTIFYING THE AMMO.

COLOR MARKING IS CRITICAL... PROTECT IT WITHOUT IT YOU CAN'T TELL WHICH IS WHAT.

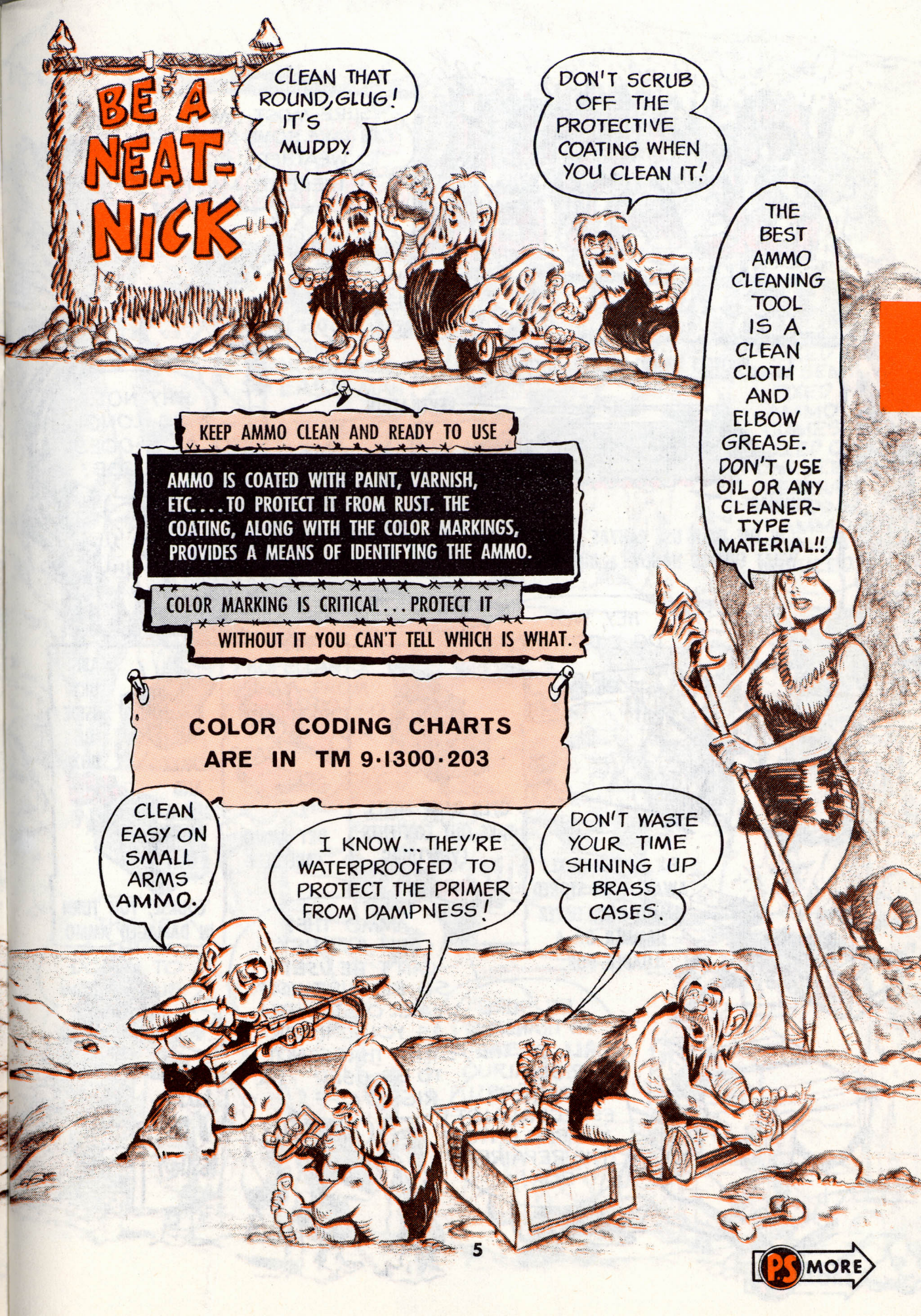
COLOR CODING CHARTS ARE IN TM 9-1300-203

CLEAN EASY ON SMALL ARMS AMMO.

I KNOW... THEY'RE WATERPROOFED TO PROTECT THE PRIMER FROM DAMPNESS!

DON'T WASTE YOUR TIME SHINING UP BRASS CASES.

PS MORE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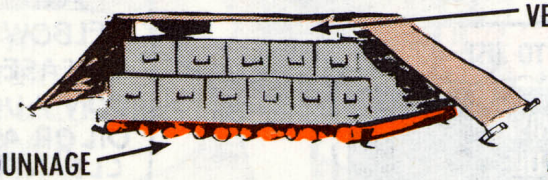
P.S MORE

WEATHER BEATEN

SURE, MOST AMMO CAN TAKE SOME EXPOSURE TO WEATHER... BUT THERE'RE LIMITS!

PROTECT AMMO STORED OUTDOORS



IN THE FIELD USE CANVAS, WOOD OR WHAT EVER IS HANDY... BUT COVER IT.

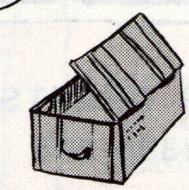
BE SURE STORED AMMO STAYS DRY AND CLEAN

WHY NOT... AS LONG AS IT DOES THE JOB!

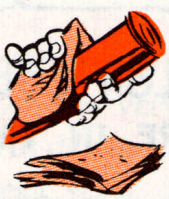
HOW ABOUT?

HEY, WOT DO I DO NOW?

FIX BUSTED BOXES AWAY FROM STORED AMMO AND, NEVER HAMMER ON A LOADED BOX.



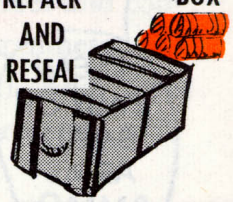
OPEN DAMP BOXES, TAKE OUT CONTENTS ... EVERYTHING



DRY AMMO CAREFULLY

AIR-DRY INSIDE OF BOX

REPACK AND RESEAL



'COURSE, YOU TURN IN DAMAGED AMMO.

AMMO THEY CAN'T IDENTIFY CAN'T BE USED. SO, BE SURE YOU MARK OR TAG IT AS YOU UNPACK STUFF THAT'S NOT TO BE USED RIGHT OFF!

BE SURE TO TRANSFER **ALL** OF THE ORIGINAL MARKINGS, ESPECIALLY LOT NUMBER, ONTO THE REPAIRED BOX!

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LOST ID DESTROY

PROPELLANTS PRIMERS, FUZES

THEY'RE VERY EASILY DAMAGED BY MOISTURE, HEAT, HUMIDITY AND SHOCK— SO **EASY**, MAN!

THEY MUST BE IN TOP SHAPE FOR THE AMMO TO DO ITS JOB!

FIXED AND SEMI-FIXED AMMO COMES FUZED OR UNFUZED... SEPARATE LOADING AMMO COMES UNFUZED.

KEEP PROPELLANTS **AWAY** FROM THE WEAPON SO NO FLAME OR SPARKS HIT 'EM.

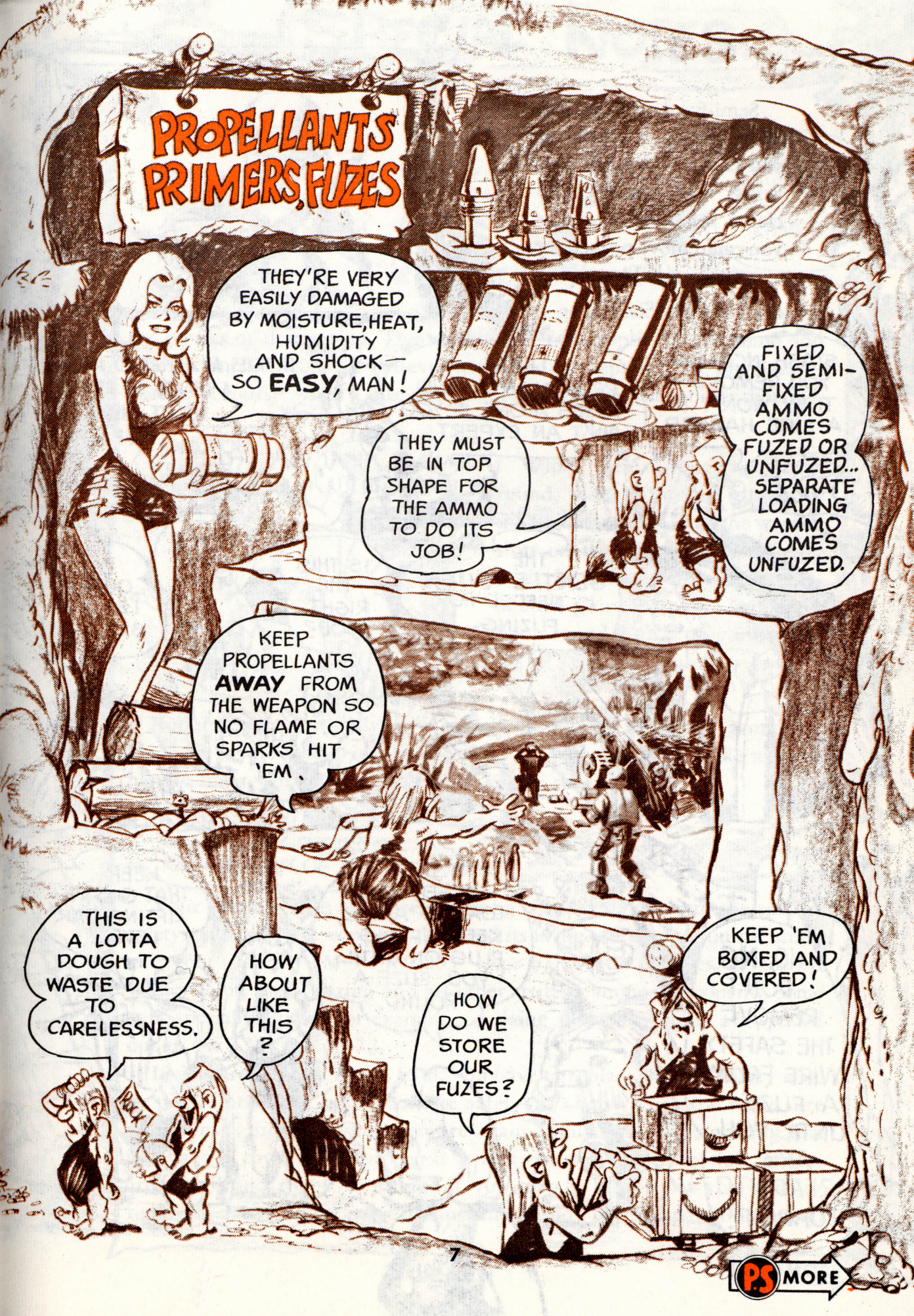
THIS IS A LOTTA DOUGH TO WASTE DUE TO CARELESSNESS.

HOW ABOUT LIKE THIS?

HOW DO WE STORE OUR FUZES?

KEEP 'EM BOXED AND COVERED!

PS MORE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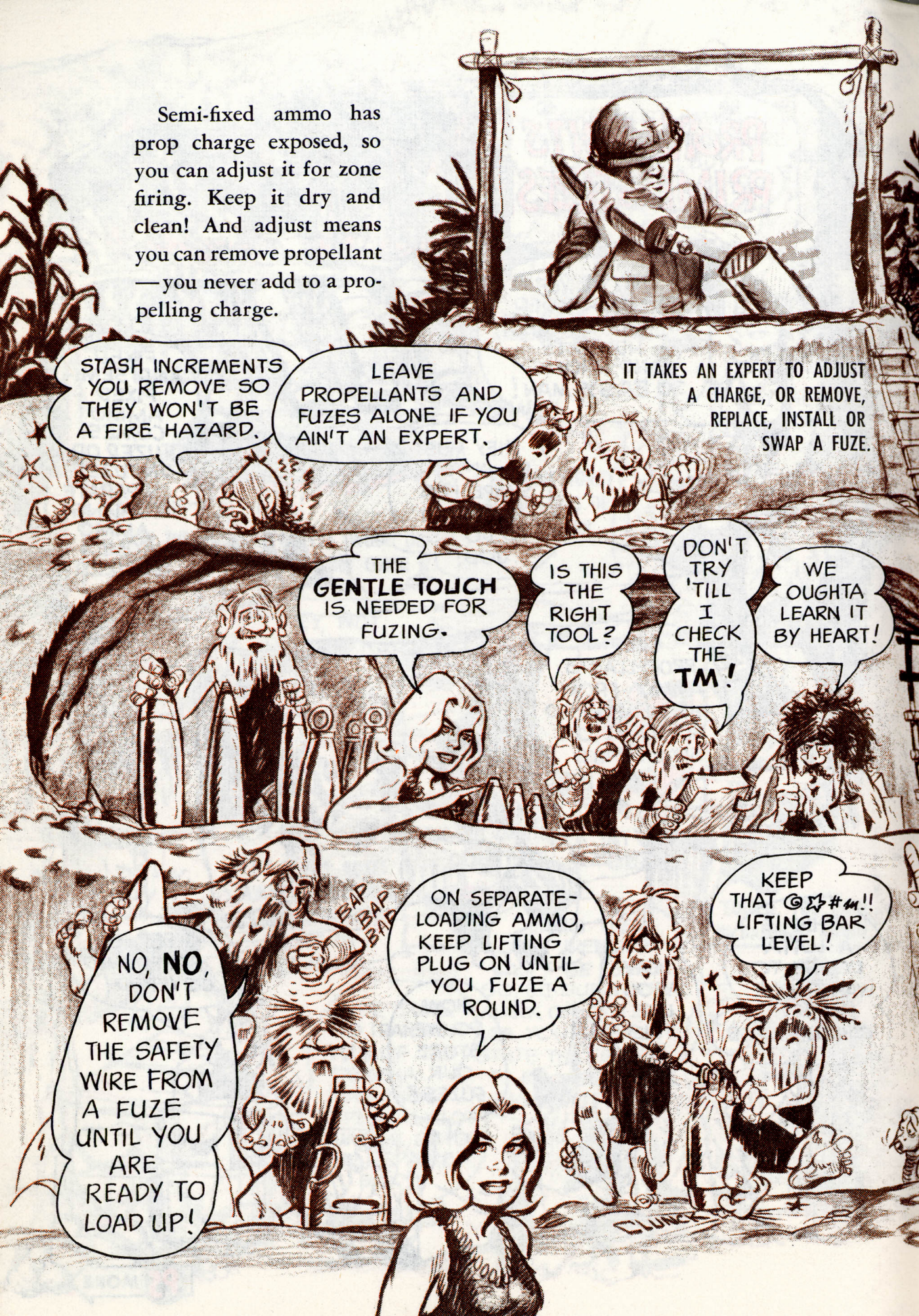
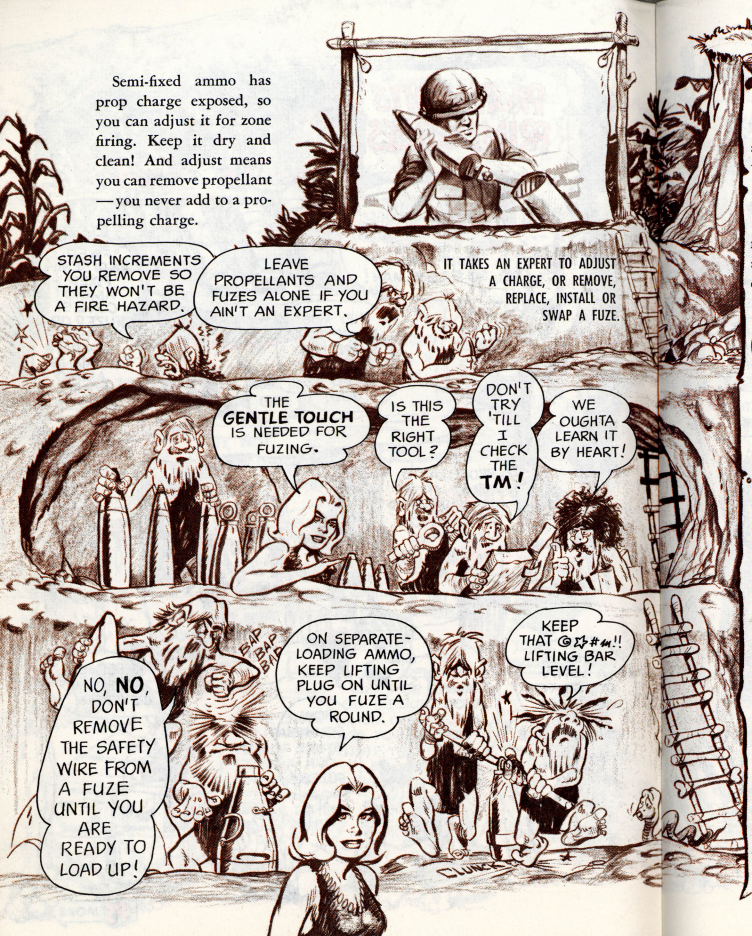

Semi-fixed ammo has prop charge exposed, so you can adjust it for zone firing. Keep it dry and clean! And adjust means you can remove propellant —you never add to a propelling charge.
STASH INCREMENTS YOU REMOVE SO THEY WON'T BE A FIRE HAZARD.
LEAVE PROPELLANTS AND FUZES ALONE IF YOU AIN'T AN EXPERT.
IT TAKES AN EXPERT TO ADJUST A CHARGE, OR REMOVE, REPLACE, INSTALL OR SWAP A FUZE.
THE GENTLE TOUCH IS NEEDED FOR FUZING.
IS THIS THE RIGHT TOOL?
DON'T TRY 'TILL I CHECK THE TM!
WE OUGHTA LEARN IT BY HEART!
NO, NO, DON'T REMOVE THE SAFETY WIRE FROM A FUZE UNTIL YOU ARE READY TO LOAD UP!
BAP BAP BAP
ON SEPARATE-LOADING AMMO, KEEP LIFTING PLUG ON UNTIL YOU FUZE A ROUND.
KEEP THAT @☆#$!! LIFTING BAR LEVEL!
CLUNK

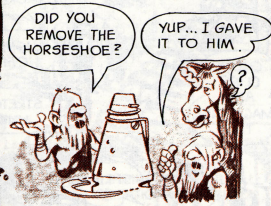
Semi-fixed ammo has prop charge exposed, so you can adjust it for zone firing. Keep it dry and clean! And adjust means you can remove propellant—you never add to a propelling charge.



SPECIAL NOTES...

Fuzes are never taken apart or altered in any way by anyone in the field.

If a fuze is rusty, corroded or damaged, it goes back to ammo support for repairs or destruction. The warning, in fact, applies to all ammo and ammo components . . . **it is never modified or repaired by the user**—except, of course, when a fuze swap or propellant adjustment is authorized.



When you unpack a fuzed round, though, be sure to remove the horseshoe stop from the wrench slots on the fuze. Firing a round with the horseshoe stop will damage the gun tube. And, you never fire a round with a proximity fuze set on S. It'll not be set for arming.

Rotating a fuze rapidly or carelessly can cause accidental arming if the fuze or the round is later dropped or mishandled. So, like always, handle fuzes with TLC when you're setting them.

Your best bet with any fuze or fuzing chore is to know all the specific safety cautions. The weapon's TM and its firing tables give you the scoop on your fuzes. TM 9-1300-203 (Apr 67) with changes, is loaded with info on fuzes, fuzing and all other artillery ammo components. Some very special cautions, for example, on using proximity fuzes are spelled out in the TM's para 5-72.

If prepared ammo is not fired, you have to replace the fuze safety wire or pin immediately, and otherwise safety the ammo. Then you make sure that ammo's used first when you fire again. While it's on the waiting line you have to cover it and protect it as best you can, from rain, dust, grime, grease, oil and rough handling. If you turn in the ammo you have to repack it, date it and mark it to show the ammo's been prepared for firing.

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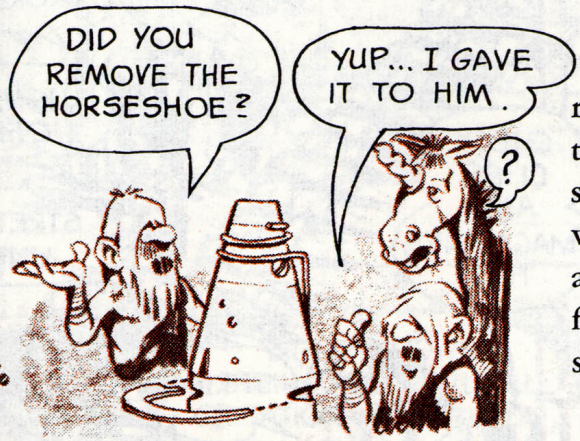
Fuzes are never taken apart or altered in any way by anyone in the field.

If a fuze is rusty, corroded or damaged, it goes back to ammo support for repairs or destruction. The warning, in fact, applies to all ammo and ammo components . . . **it is never modified or repaired by the user**— except, of course, when a fuze swap or propellant adjustment is authorized.



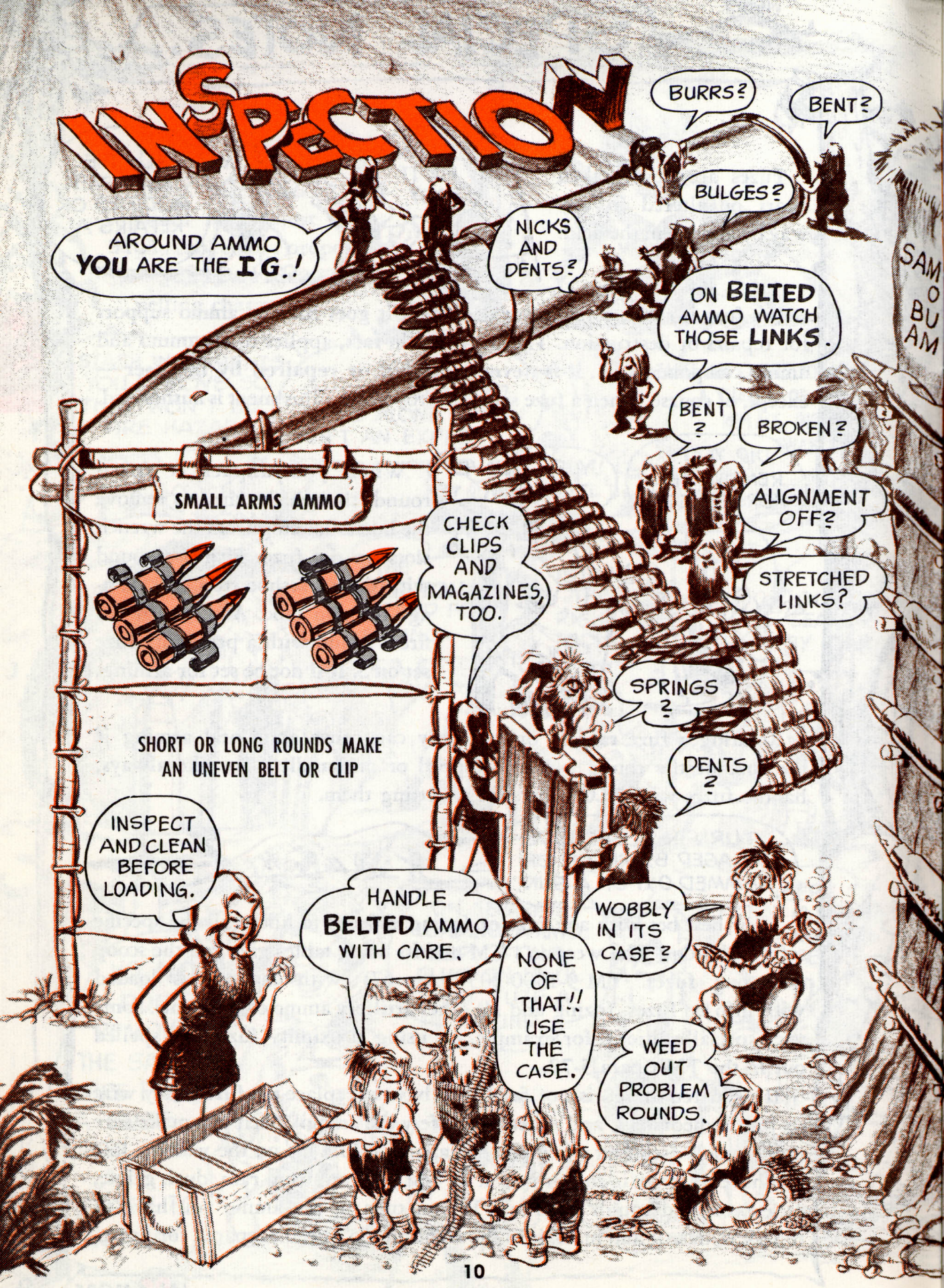
When you unpack a fuzed round, though, be sure to remove the horseshoe stop from the wrench slots on the fuze. Firing a round with the horseshoe stop will damage the gun tube. And, you never fire a round with a proximity fuze set on S. It'll not be set for arming.

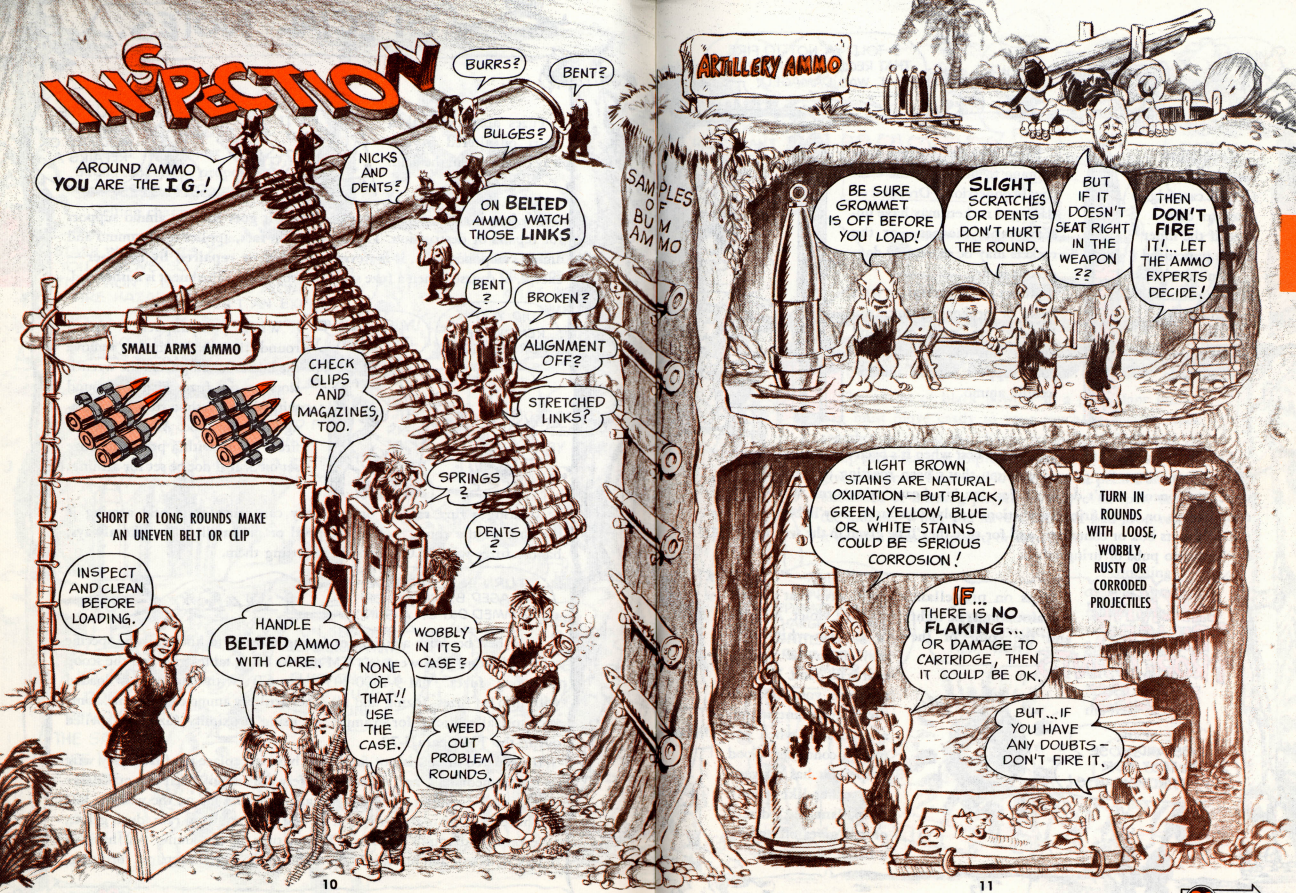
Rotating a fuze rapidly or carelessly can cause accidental arming if the fuze or the round is later dropped or mishandled. So, like always, handle fuzes with TLC when you're setting them.

Your best bet with any fuze or fuzing chore is to know all the specific safety cautions. The weapon's TM and its firing tables give you the scoop on your fuzes. TM 9-1300-203 (Apr 67) with changes, is loaded with info on fuzes, fuzing and all other artillery ammo components. Some very special cautions, for example, on using proximity fuzes are spelled out in the TM's para 5-72.

If prepared ammo is not fired, you have to replace the fuze safety wire or pin immediately, and otherwise safety the ammo. Then you make sure that ammo's used first when you fire again. While it's on the waiting line you have to cover it and protect it as best you can, from rain, dust, grime, grease, oil and rough handling. If you turn in the ammo you have to repack it, date it and mark it to show the ammo's been prepared for firing.

PS MORE


INSPECTION
AROUND AMMO YOU ARE THE I.G.!
BURRS?
BENT?
BULGES?
NICKS AND DENTS?
ON BELTED AMMO WATCH THOSE LINKS.
BENT?
BROKEN?
ALIGNMENT OFF?
STRETCHED LINKS?
SMALL ARMS AMMO
CHECK CLIPS AND MAGAZINES, TOO.
SPRINGS?
DENTS?
SHORT OR LONG ROUNDS MAKE AN UNEVEN BELT OR CLIP
INSPECT AND CLEAN BEFORE LOADING.
HANDLE BELTED AMMO WITH CARE.
NONE OF THAT!! USE THE CASE.
WOBBLY IN ITS CASE?
WEED OUT PROBLEM ROUNDS.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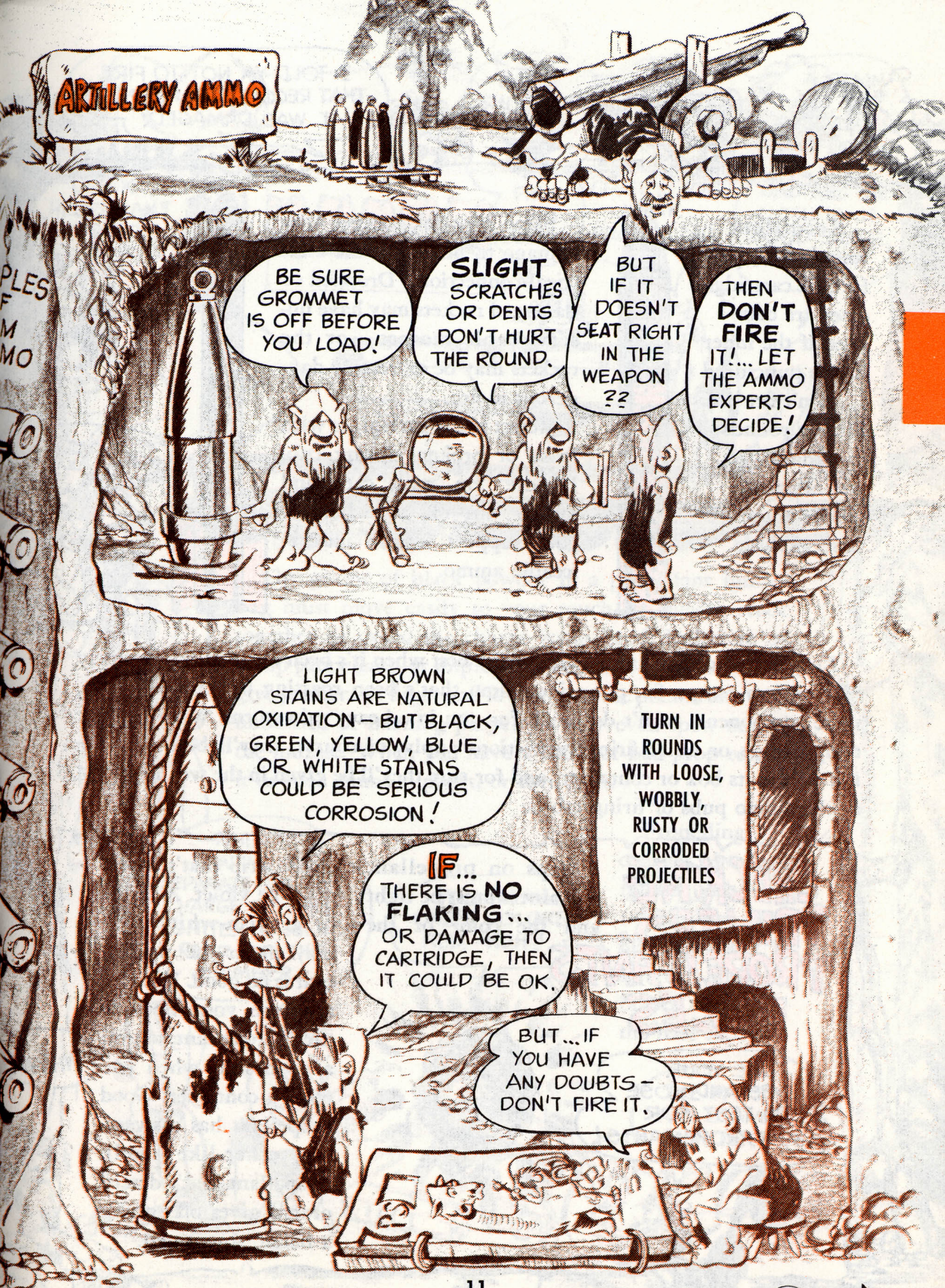
SAMPLES OF BUM AMMO
ARTILLERY AMMO
BE SURE GROMMET IS OFF BEFORE YOU LOAD!
SLIGHT SCRATCHES OR DENTS DON'T HURT THE ROUND.
BUT IF IT DOESN'T SEAT RIGHT IN THE WEAPON ??
THEN DON'T FIRE IT!... LET THE AMMO EXPERTS DECIDE!
LIGHT BROWN STAINS ARE NATURAL OXIDATION – BUT BLACK, GREEN, YELLOW, BLUE OR WHITE STAINS COULD BE SERIOUS CORROSION!
IF... THERE IS NO FLAKING... OR DAMAGE TO CARTRIDGE, THEN IT COULD BE OK.
BUT... IF YOU HAVE ANY DOUBTS – DON'T FIRE IT.
TURN IN ROUNDS WITH LOOSE, WOBBLY, RUSTY OR CORRODED PROJECTILES

PS MORE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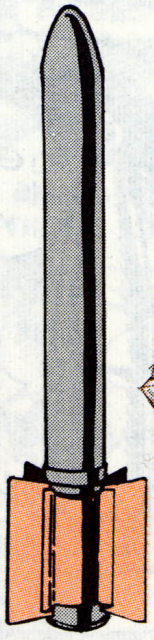
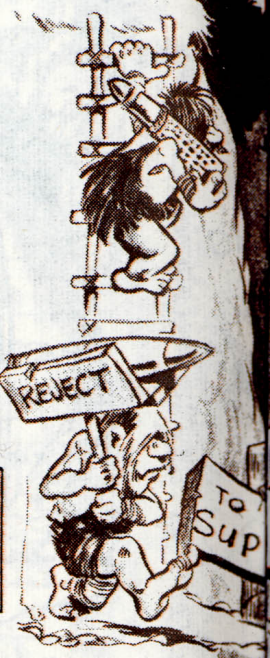
P.S MORE

Recoilless rounds with perforated cartridge cases are damaged if the inner bag is punctured . . . don't fire 'em. Mortar rounds with damaged, wet or spotty propellant are unserviceable.

Same goes for rockets with damage to fins or to the electrical connections. Dropped or damaged rockets may have unserviceable motors—or the rockets may be extremely dangerous to fire.

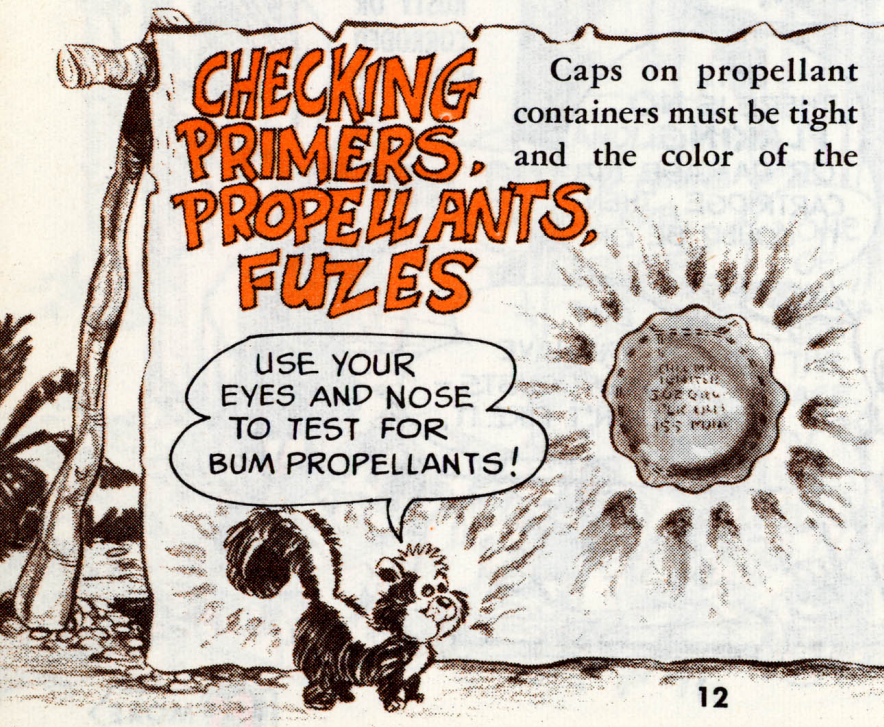
Reject blank cartridges with loose or broken closing cup. Handle 'em with care and march 'em off to wherever your support collects unserviceable ammo.





Keep in mind that ammo's not at its best when it's been exposed to extremely high or low temps. So, put aside ammo that's been roasting or freezing. Also, some components won't do much for you in a heavy rain storm. When specific temp ranges or other firing restrictions apply, of course, they'll be quoted on the ammo, its box or container, and for sure they'll be given in the weapon's TM or the ammo pubs or firing tables.

CHECKING PRIMERS, PROPELLANTS, FUZES



Caps on propellant containers must be tight and the color of the check strip that's inside must be violet. A faded or grayish-white strip may mean the propellant is no good. You can also use your nose to check propellant, so give a good sniff when you open a container. Good propellant has a sweetish, ether-like smell. Propellant that's deteriorated gives off sort of a harsh, sour smell.

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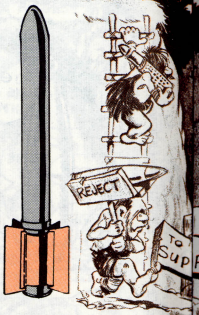

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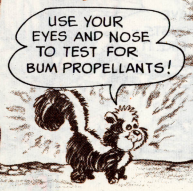

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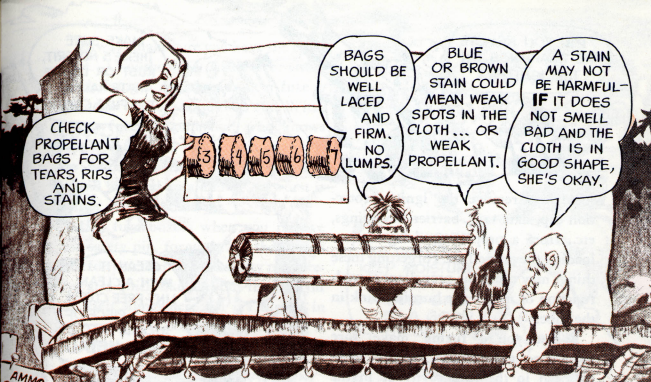
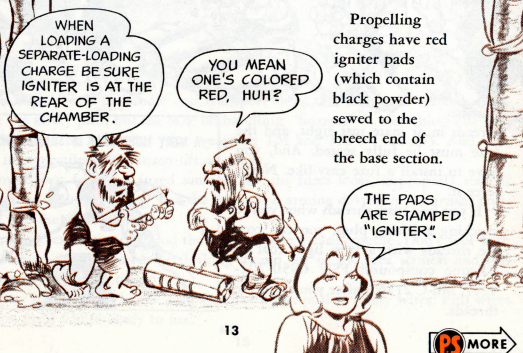
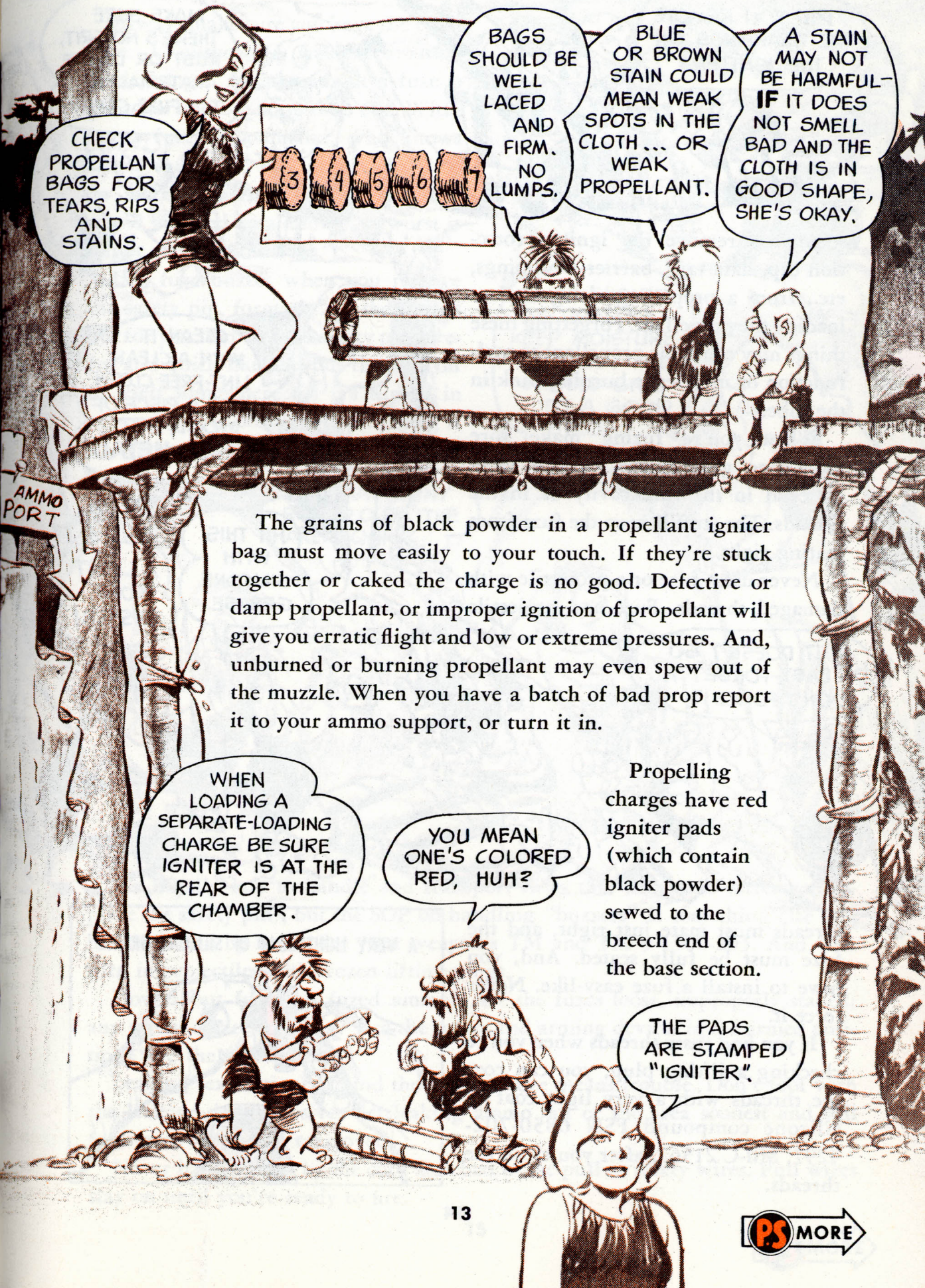


The grains of black powder in a propellant igniter bag must move easily to your touch. If they're stuck together or caked the charge is no good. Defective or damp propellant, or improper ignition of propellant will give you erratic flight and low or extreme pressures. And, unburned or burning propellant may even spew out of the muzzle. When you have a batch of bad prop report it to your ammo support, or turn it in.



Propelling charges have red igniter pads (which contain black powder) sewed to the breech end of the base section.

PS MORE



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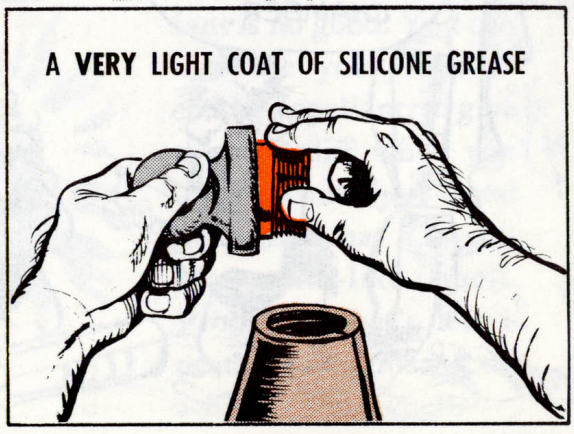
Always remove the igniter-protection cap, data tags, barrier wrappings, etc., from a propelling charge before loading the propellant. Forgetting these things may cause the propellant to malfunction or may leave burning junk in the tube.

When you're fuzing make sure there's no grit, grease, rust or loose material in the fuze cavity or in the threads. The stuff'll keep the fuze from seating right.

Never use a fuze or a projectile with damaged threads. Fuze and projectile threads must mate just right, and the fuze must be fully seated. And, you have to install a fuze easy-like. Never force it.

If you find rusty threads when you're checking a lifting plug, you can coat the threads with a very light coat of silicone compound FSN 6850-702-4297, Mil-C 21567, after you clean the threads.



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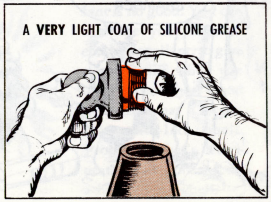

Always make sure you have the right fuze. Unauthorized fuzes are risky. And, firing a round without a fuze is pointless in more ways than one. Without a fuze in command, who knows where the ammo will go or what it'll do when it gets there. At best, the round will end up a dud . . . at worst it might go off in the bore.

If a fuze buzzes when you remove the safety pin, forget it . . . the fuze is not for you. Replace the safety pin careful and quick-like and put the fuze off to itself somewhere till it's turned in or reported. If possible, mark or tag it so everyone else will know it's a bum fuze.

It's usually safe to handle and transport fuzes that've buzzed (after you replace the safety pin), but the SOP on handling "buzzers" is something else you have to learn by heart. See your weapon's TM and TM 9-1300-203. And, you turn in projectiles with frozen lifting plugs.

How about fuzes on fuzed ammo? Are the fuzes loose, improperly staked; any safety devices missing? Are the safety and arming devices in the armed position? Eye the fuzes closely.

Leaking (exudation) around the plug or fuze means trouble. Don't fool with the leakage, it's explosive. Get leaking ammo out of the area soonest and yell for ammo support to take over.

Never handle fuzes by the cord attached to the pull or safety wires. Pull wires stay on until you're ready to fire.

PS MORE

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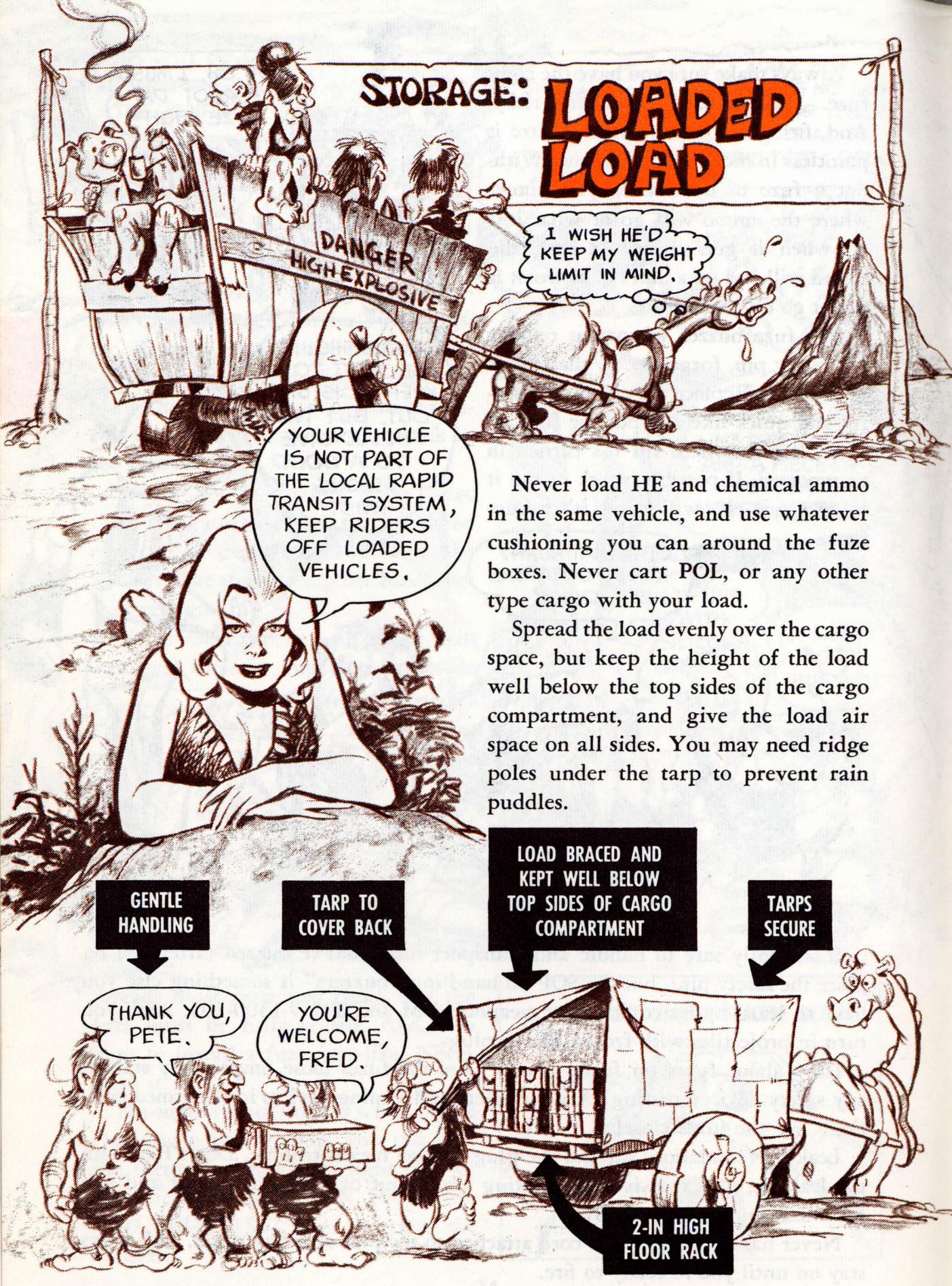
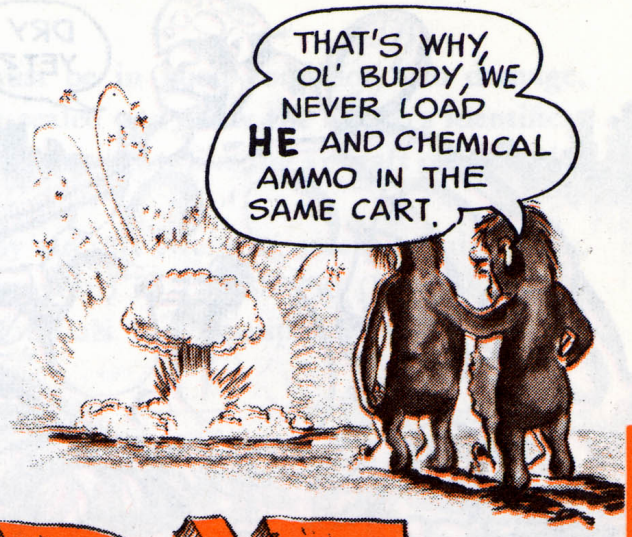


Never load HE and chemical ammo in the same vehicle, and use whatever cushioning you can around the fuze boxes. Never cart POL, or any other type cargo with your load.

Spread the load evenly over the cargo space, but keep the height of the load well below the top sides of the cargo compartment, and give the load air space on all sides. You may need ridge poles under the tarp to prevent rain puddles.

Plan your loading so you don't have to wrestle the ammo too much. In fact, the less you man-handle your ammo, the better. Like when you're loading a vehicle, get it as close as you can to the ammo, and use a human-chain to pass the ammo gently. To load or unload boxed ammo you can use smooth, clean boards to form a slanting ramp and slide the boxes easy-like on or off the vehicle.



HOLD IT...

Any vehicle going close to your ammo load, or totin' it, must be in top operating condition, especially the electrical, fuel and steering systems and the brakes. It must be real clean. No oil, fuel, grease or any other flammable stuff sticking on anything. And, it must be equipped with a flame and spark arrestor, and good fire extinguishers must be on board.

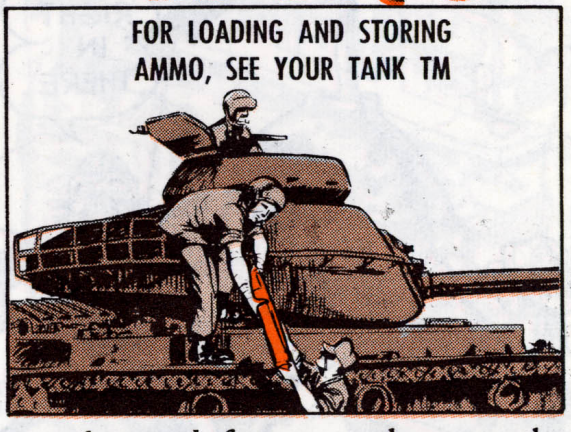
And, whether it's loaded or unloaded a vehicle is never refueled anywhere near your ammo . . . not even from a portable refueling gear. A loaded vehicle gets refueled way off to itself.

The ammo vehicle driver must know what his cargo is, and he must be a top-notch driver.

FRIVOLOUS FUELER EX-AMMO DRIVER OF THE MONTH

CV LOADING

In passing large rounds into a combat vehicle always shield both ends of a round from bumps and knocks. Cover the fuze (or projectile end) with one hand and protect the base and primer with the other hand. That goes for each man in the loading line-up. The first man covers a round fore and aft until the next man in line can slip one hand over each end of the round. And, ammo with the primer installed you pass fuze-end first to make sure the base of the round doesn't get rammed or bumped as it travels into the vehicle.



P.S MORE

Belted machine gun ammo and other small arms ammo collects lots of moisture when it's stored in a combat vehicle. So, you have to keep a close check on it, wipe it dry and air it out, or it'll be ruined in no time. You can beat the mosture problem some, if you open the doors, ramp, hatches, etc., when you can, to let outside air hit the ammo.

Large rounds stored in the vehicle's ammo racks also need regular attention. They're normally inspected or unloaded for cleaning as called for by the commander's SOP. And, when you clean, paint, grease, oil or wash anything inside the vehicle, you have to protect the racked and packed ammo from whatever you're using. Also, when you hose-down the outside of the vehicle, close it up to keep the inside dry as possible.

CHOPPER LOADING

If you're transporting your load in a chopper, you have to take the ammo to the chopper . . . the bird doesn't come to where your ammo's stashed. All switches on the chopper must be off, the rotor must be secured and the chopper must have a good electrical ground. While the loading or unloading is going on, the chopper should have explosives warning signs attached to its sides.

The ammo boxes and containers must be in good condition (no damage, breaks, leaks, etc.), they must be tightly sealed and show the ammo's identification on the outside. The load must be lashed down like the aircraft commander says.

The specifics on transporting ammo by aircraft (weights, safety requirements, compatability of ammo types, etc.) are covered in TM 38-250 (May 68) Packaging and Handling of Dangerous Materials for Transportation in Military Aircraft.

If your outfit's staying put for a spell and the ammo's stacked outside (or, by some good luck, indoors), stack your ammo by vehicle load and ear-mark it for the vehicle it's carried on. That'll save time and sweat if you have to bug out.

Stacking by lot number is downright critical for artillery ammo that must zero-in just right for pin-point support.

Store your load away from power lines, electric cables, towers, trees and anything else that may attract lightning. Keep it away from busy roads and trails . . . and as far as possible from airfields, gas dumps, water supplies and hospital areas.

PS MORE

Keep all boxes and containers in a stack headed in the same direction and with the identification info facing out.

Try for hard, well drained or high ground, otherwise a good rain may sink or drown your stacks. You'll need at least 6 inches of strong, well-supported dunnage under each stack.

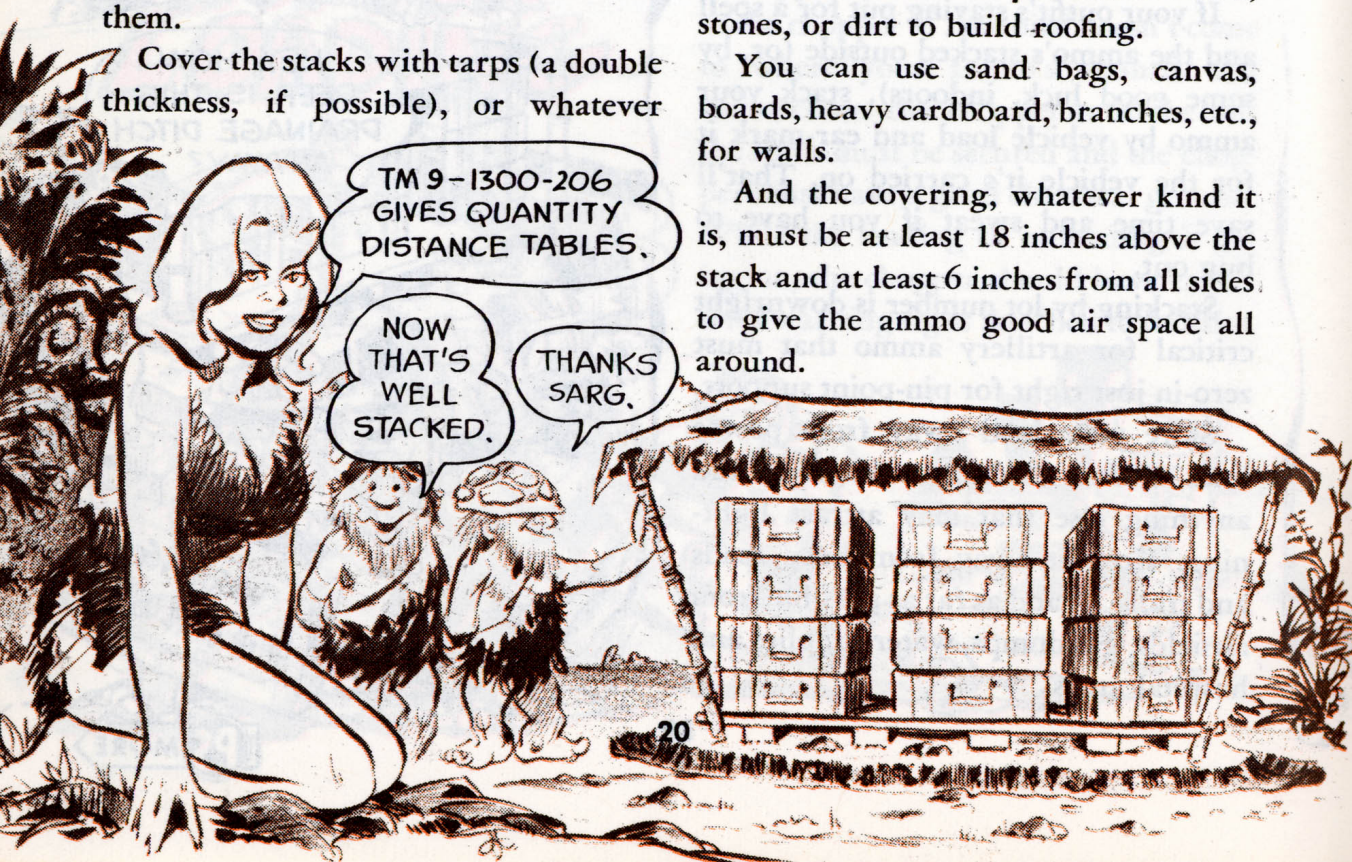
You can use boards, logs, limbs, stones or small arms ammo boxes filled with sand or dirt for dunnage. If you don't have a good storage location you'll need drainage ditches around the stacks so water'll not collect under them.

Cover the stacks with tarps (a double thickness, if possible), or whatever weather-proof material you have handy. When rain and dampness are scarce, you can use layers of grass or branches to protect ammo from the sun and grime. And, thatching or layers of palm leaves protect even against dampness . . . just let the roofing material overhang the stack a good bit. And, remember that stuff isn't firepoof. Also, before you go gathering material, be sure the stripping of trees, foliage, etc., won't hurt your camouflage or the neighborhood.

In desert-like areas you can use sand, stones, or dirt to build roofing.

You can use sand bags, canvas, boards, heavy cardboard, branches, etc., for walls.

And the covering, whatever kind it is, must be at least 18 inches above the stack and at least 6 inches from all sides to give the ammo good air space all around.



Never lay canvas or any other covering on top of boxes or containers, 'cause you'll just be creating a sweaty situation for the stack. And, never nail the covering right to the stack (nailing and hammering on ammo containers is dangerous, remember). Secure it with rope, twine or wire, or anchor the covering some other way so it'll stand up to rain, snow and wind.

In tropical climates you have to check dunnage, tarps and other covering frequently for mildew, rot, termites, fungus, snakes, rats and the like.

Continuous exposure to moisture and high temps will hurt all ammo eventually. But, pyrotechnics and primers absorb moisture like crazy, and once they do they're done for. So you really have to try hard to keep that stuff dry. You also have to keep it off to itself and pointing away from other stacks and your neighbors and friends.

WP and PWP ammo also needs a clear area. You store it on its base, especially where temps go up to 111° F. The 3.5 WP rocket, though, is an exception to the WP storing rule . . . you have to keep it nose down, never on its tail or its side, especially where it's hot.

Never store any type of rockets between stacks of other ammo. They go to the farthest end of your storage area. Store them nose down or pointing away from other ammo. If you can swing it, face them into an embankment or some similar barrier.

Stash chemical ammo off to itself, too, and place it so each round can be easily inspected and quickly removed from the stack. Locate it so it's downwind from your tepee.

Keep fuzes for separate-loading ammo off to themselves as much as you can, in case a fuze goes off by itself. Remember, fuzes are real sensitive to high temps, direct sun heat and high humidity.

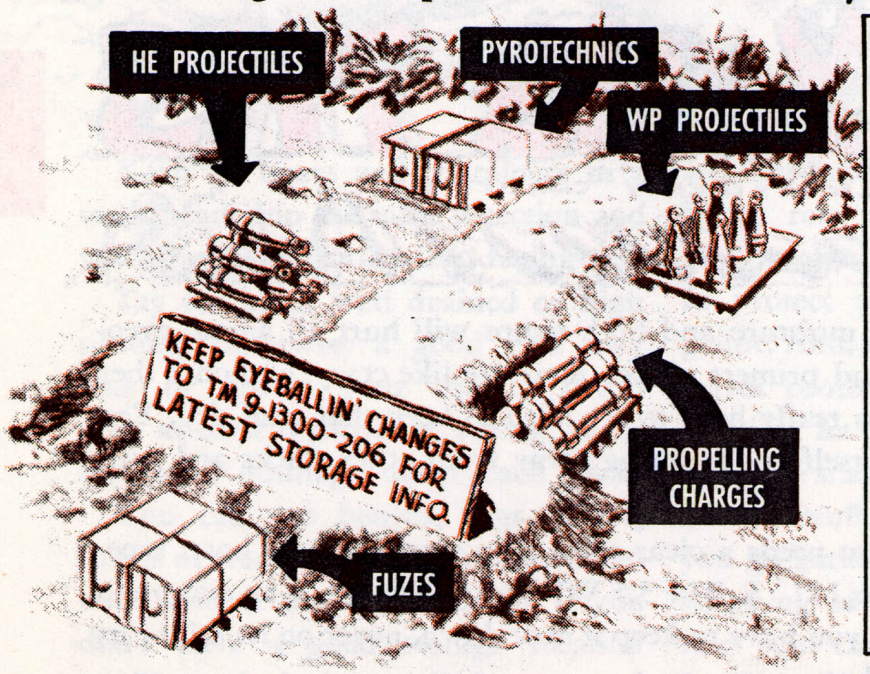
Stack rounds with perforated cartridge cases away from all pointed objects (nails, wire, tools, sharp rocks, twigs, etc.). Never let them lie on the bare ground, not even at the gun site.

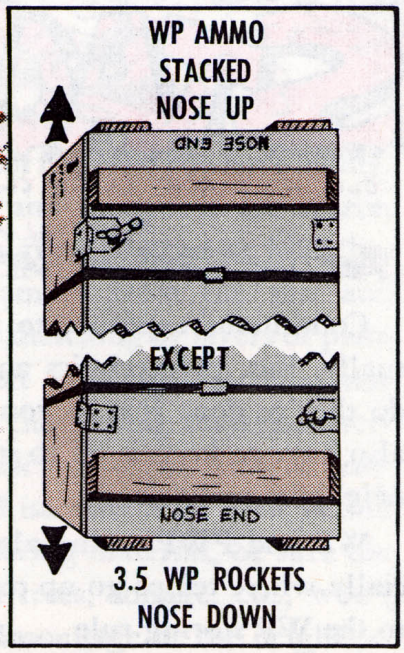
P.S. MORE

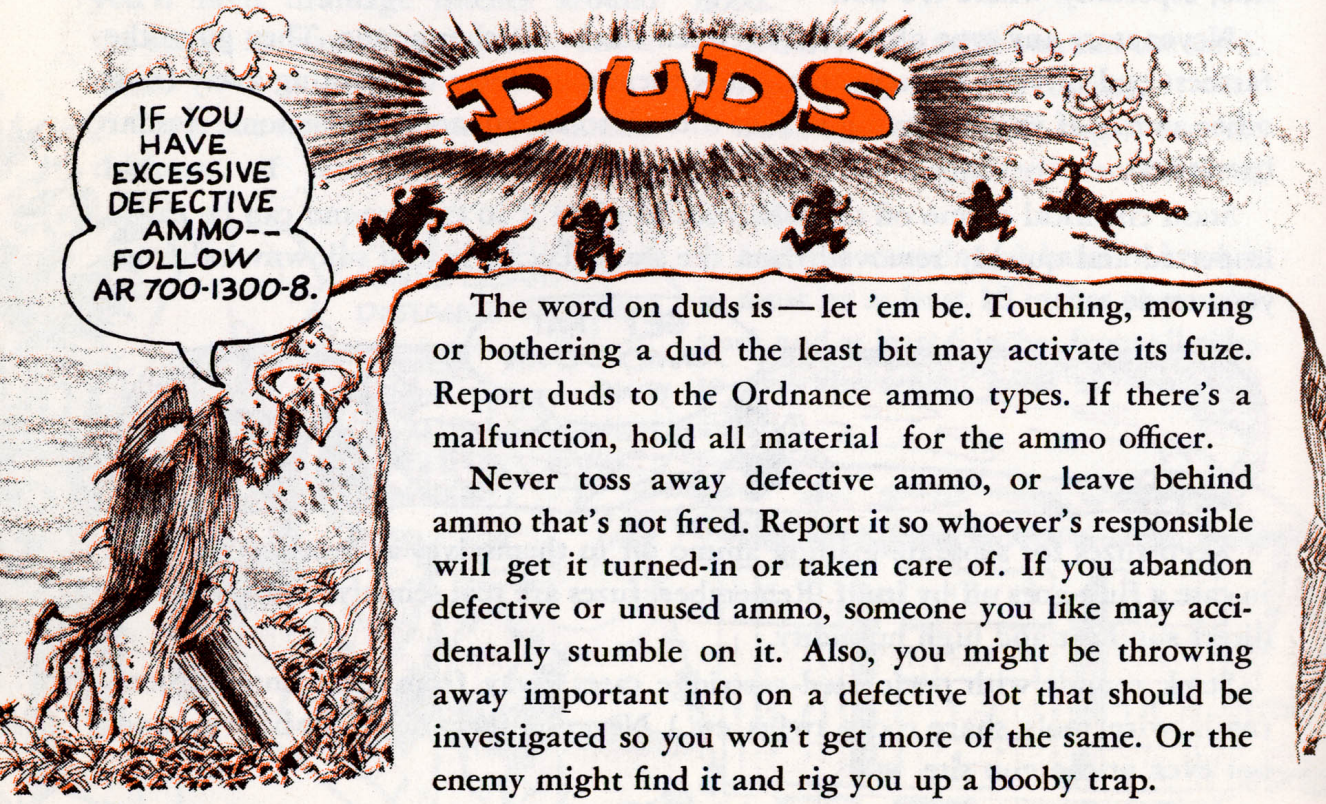
Mines are waterproofed for ground-laying, but like all other ammo, they have to be kept boxed and protected from moisture and shock until they're needed.

Keep the ammo area clear of trash, dry grass, rags, broken glass, glass containers and anything else that might help start a fire. Make sure fire extinguishers and a water supply of some kind is handy to your stored load.

Your load, of course, has to be guarded or secure around the clock. See AR 190-11 (Aug 68), Weapons and Ammunition Safety.







The word on duds is — let 'em be. Touching, moving or bothering a dud the least bit may activate its fuze. Report duds to the Ordnance ammo types. If there's a malfunction, hold all material for the ammo officer.

Never toss away defective ammo, or leave behind ammo that's not fired. Report it so whoever's responsible will get it turned-in or taken care of. If you abandon defective or unused ammo, someone you like may accidentally stumble on it. Also, you might be throwing away important info on a defective lot that should be investigated so you won't get more of the same. Or the enemy might find it and rig you up a booby trap.

SUPPLY/ FORMS/RECORDS

The ammo officer, NCOIC, the supply types, or some other wheels in your outfit keep the record straight on the outfit's authorized basic load.

The needed nose-count or paper-work is set up by the CO's SOP. They use DA Form 581, Request for Issue and Turn-in of Ammunition, like it says in para 4-3, Ch 1 (May 68), AR 735-35. They follow AR 700-1300-8 and Chap 5, TM 38-750 (May 67), plus the local ammo safety and reporting SOP, to take care of defective ammo, malfunctions and accidents.

But, it's up to you to let them know (as soon as you can) whenever you have a problem—and, that includes a hangfire, misfire or cook-off.

AMMO PUBS

Now, let's stack the ammo pubs you should be familiar with, know about or be real close to:

- TM 9-1300-203 (Apr 67) Artillery Ammo.
- TM 9-1300-206 (Nov 64) Care, Handling, Preservation and Destruction of Ammo.
- TM 9-1305-200 (Jun 61) Small Arms Ammo.
- TM 9-1330-200 (Jun 66) Grenades, Hand and Rifle.
- TM 9-1345-200 (Jun 64) Land Mines.
- TM 9-1370-200 (Sep 66) Military Pyrotechnics.
- TM 9-1900 (Jun 56) Ammunition, General.
- TM 9-1901-1 (Dec 57) Ammo for Aircraft Guns.
- TM 9-1950 (Feb 58) Rockets.
- TM 9-6920-210-14 (Oct 68) Small Arms Targets, Material, BIIL and Repair Parts.
- FM 5-20 (May 68) Camouflage.
- TM 5-200 (Apr 68) Camouflage Materials.
- FM 9-6 (Jun 65) Ammo Service in the Theatre of Operations.
- FM 23-30 (Oct 59) Grenades and Pyrotechnics . . . plus the specific 23-series FM on your weapon.
- The FM in the 6-, 7-, or 17-series (your outfit's TOE-series number), that covers your unit's weapons or operations.
- TB 9-AMM5 (Jun 65) Ammo FSN and DOD Codes.
- TB 9-1300-246/1 (Apr 64) Ammo Color Coding.
- TB 9-1300-385 Restricted or Suspended Ammo. (Published monthly or as needed.)
- SB 755-140-1 (Apr 67) Disposition of Used Packing Material and Ammo Components.
- SB 700-20 Adopted Items of Materiel and Army Reportable Items.
- SB 38-100 Preservation, Packaging and Packing materials, Supplies and Equipment.
- CTA 23-100-series for ammo allowances and CTA 23-101 for allowances of miscellaneous ammo and explosives.
- AR 190-11 (Aug 68) Weapons and Ammo Safety.
- AR 385-63 (Jun 68) Firing Ammo in Training, Target Practice and Combat.
- AR 385-65 (Apr 65) Identification of Inert Ammo and Ammo Components.
- AR 700-1300-8 (Aug 65) Malfunctions, Ammo and Explosives.

PS END

SMALL ARMS- CLEANERS,

Item	FSN	Units of Issue	Remarks
SWAB, SMALL ARMS CLEANING: cotton 2-1/2-in sq	1005-288-3565	1000 ea.	All small arms except M16A1 and other 5.56-MM weapons
SWAB, SMALL ARMS CLEANING, 1-1/4-in sq	1005-912-4248	1000 ea	For M16A1 rifle and other 5.56-MM weapons
CLEANER, TOBACCO PIPE	9920-292-9946	36 per pkg	For M16A1 rifle and other 5.56-MM weapons
CLOTH, ABRASIVE CROCUS, 9x11 sheet (CA)	5350-221-0872	50-sheet sleeve	Strictly for armorer's use only
RAG, WIPING, COTTON (Fed DDD-R-30)	7920-205-1711	50-lb bale	
CLEANING COMPOUND, Rifle Bore MIL-C-372B	6850-224-6656 6850-224-6657 6850-224-6663	2-oz bottle 6-oz can 1-gal can	For internal and external cleaning of all weapons after they've been fired
CARBON REMOVING COMPOUND, (P-C-111b)	6850-965-2332	5-gal pail	Strictly for armorer's use only
DRY CLEANING SOLVENT (SD-1) P-D-680, Type I	6850-664-5685 6850-281-1985	1-qt can 1-gal can	Strictly for armorer's use only
LUBRICATING OIL: semi-fluid Mil-L-46000A (LSA)	9150-935-6597 9150-889-3522 9150-687-4241 9150-753-4686	2-oz bottle 4-oz bottle 1-qt can 1-gal can	For 16A1 rifle and other 5.56-MM weapons, crew-served machine guns, certain parts of some helicopter machine guns (see your TM)
LUBRICATING OIL: semi-fluid, low friction (RIAPD-688) (LSA-T)	9150-949-0323	8-oz tube	For certain parts of some helicopter armament machine gun systems (see your TM)
LUBRICATING OIL, GENERAL PURPOSE: Preservative Special (PL-S) VV-L-800.	9150-273-2389 9150-231-6689	4-oz can 1-qt can	For small arms, except M16A1 and other 5.56-MM weapons (see your TM)

SMALL ARMS- CLEANERS, LUBES AND PRESERVATIVES

Item	FSN	Units of Issue	Remarks
SWAB, SMALL ARMS CLEANING: cotton 2-1/2-in sq	1005-288-3565	1000 ea.	All small arms except M16A1 and other 5.56-MM weapons
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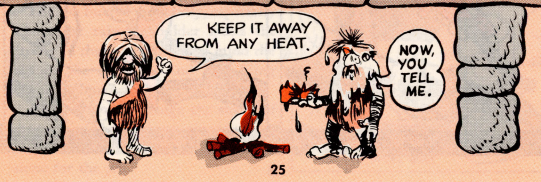
Item	FSN	Units of Issue	Remarks
LUBRICATING OIL, WEAPONS (LAW) MIL-L-14107B	9150-664-0038 9150-292-9689	4-oz can 1-qt can	For small arms at temperatures below 0°F (See your TM)
GREASE, RIFLE: Mil-G-46003 (RG)	9150-248-3480 9150-754-0063	5-cc tube 1-lb can	Use light coat on receiver group, especially in wet climates. Never use on M16A1 rifle or other 5.56-MM weapons
LINSEED OIL, RAW TT-L-215	8010-221-0611	1 gal	For wood parts. Don't use much and rub it in good with your fingers. Never use it on plastic parts
NEAT'S FOOT OIL: Fed C-N-200	8030-244-1031 8030-244-1033	1-pt 1-gal	For leather slings and carrying cases
CASE, LUBRICANT: (unfilled)	1005-791-3377	ea	See BILI listing for your weapon
ACTIVATOR, PRIMER: Grade Q	8030-980-3976	6-oz pressure can	See BILI listing for your weapon
LACQUER: black (jet) Lusterless, Type I (TTL 0050)	8010-582-5382	16-oz aerosol can	For touch-up painting of outside metal surfaces
ENAMEL: black (jet)	8010-297-0546	1-qt can	For touch-up painting of outside metal surfaces
LUBRICANT, SOLID FILM (Paint) RIAPD 703	9150-142-9309	12-oz spray can	For armorer's use only in touch-up painting of M16A1 rifles. (It's in a pressurized can. Don't puncture it or toss can in a fire.)



LUBES AND PRESERVATIVES

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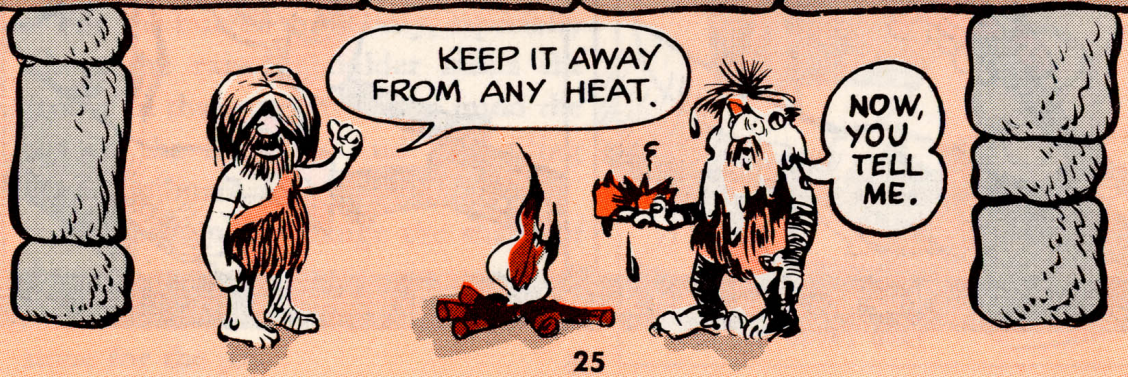
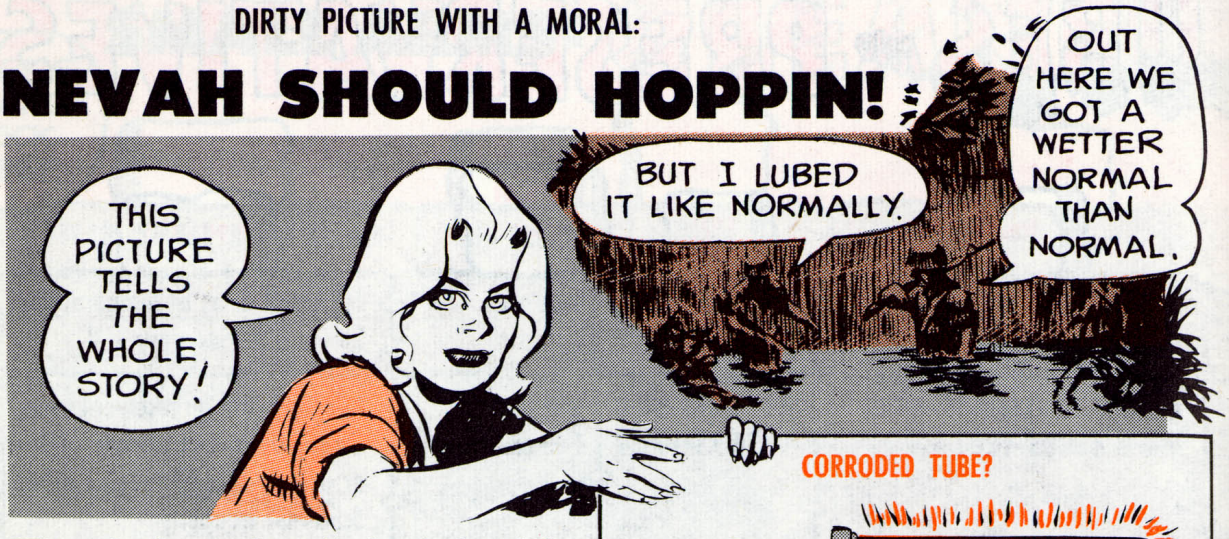
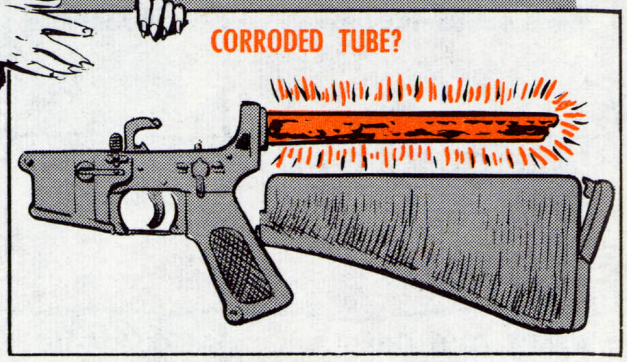


DIRTY PICTURE WITH A MORAL:

NEVAH SHOULD HOPPIN!





Water in the stock well plus lack-o-lube sets up galvanic corrosion on the aluminum tube . . . and phooey, another M16A1 rifle out of action!

So who goofed — Speedy or Zapper? Or both?

The good book says you armorers have to clean the outside of the lower receiver extension — at least once a month, but lots oftener if conditions call for it, like in the action area.

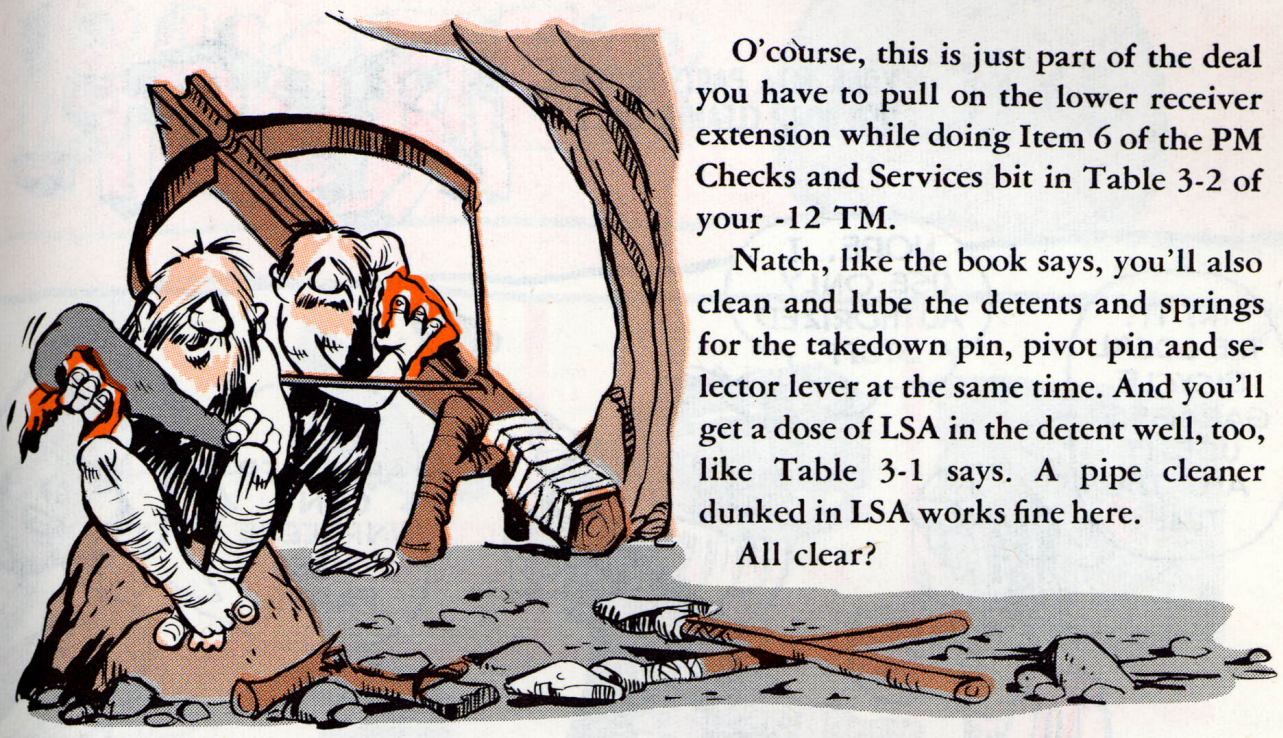
However, you riflemen have to make sure your armorer gets a chance to do the job. Might be he'll let you help him, but don't tackle it by your lonesome, otherwise.

Anyhow, the moral's clear: Never neglect this part of your zap machine!

Zapper — First chance you get after coming back from a firing mission split over to Speedy's hootch and get him on the ball.

Speedy — Take the stock off the M16 and then do your PM thing, according to what you find. If the tube's not corroded at all:

If the tube is corroded at all, get the rifle to DS for treatment.

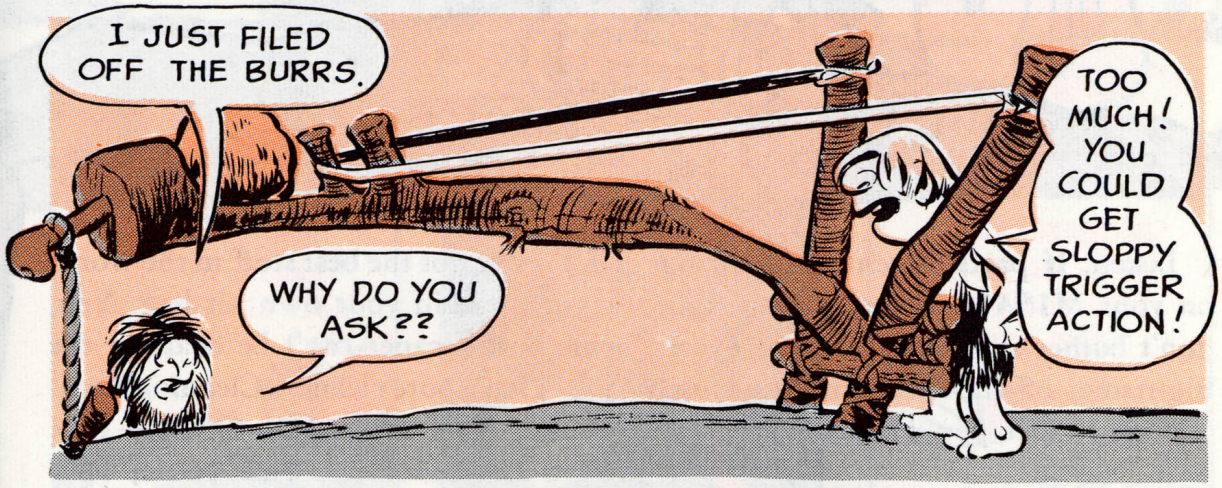


O'course, this is just part of the deal you have to pull on the lower receiver extension while doing Item 6 of the PM Checks and Services bit in Table 3-2 of your -12 TM.

Natch, like the book says, you'll also clean and lube the detents and springs for the takedown pin, pivot pin and selector lever at the same time. And you'll get a dose of LSA in the detent well, too, like Table 3-1 says. A pipe cleaner dunked in LSA works fine here.

All clear?

STICK TO THE BURRS

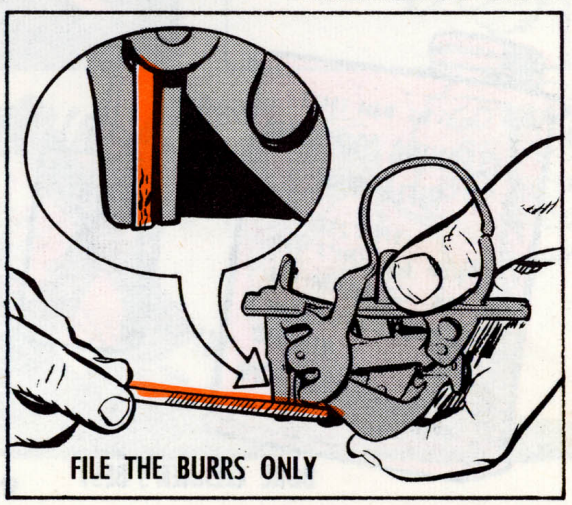


Easy does it, hey, you armorers, when you're filing down burrs on the shoulder of the M14 rifle's trigger housing.

File the burred areas only, especially where the raised shoulder meets the groove in the receiver. Never mind the rest of the housing. And stop filing when the burrs are gone.

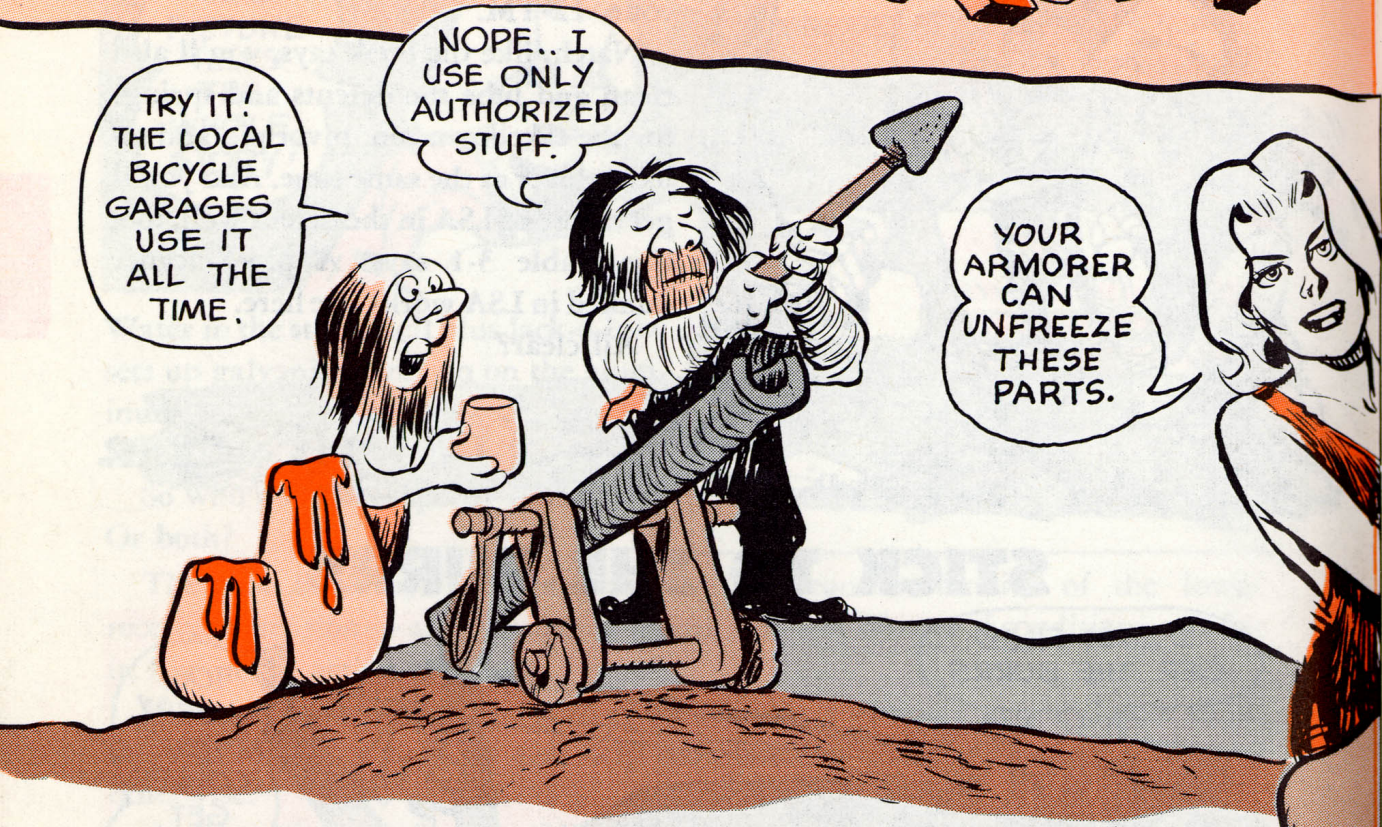
Elsewise you'll change the shape of the parts and have sloppy trigger action.

Incidentally, use a real fine file or stone for the job.

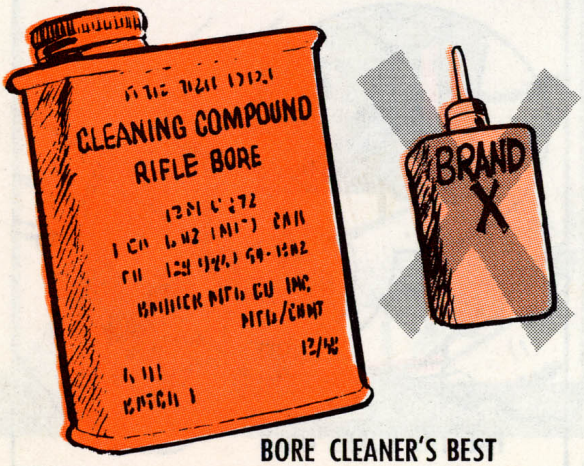


YOUR M16 PARTS FROZEN?
USE BORE CLEANER ONLY

RUST.



Listen. If parts, detents and springs on your M16A1 rifle get frozen tight, don't bother shopping for some exotic, big-name, off-the-shelf stuff to loosen 'em up. In fact, you'd better not!



BORE CLEANER'S BEST

You've got the best stuff in the world right there in your own kit bag. Yep, rifle bore cleaner can't be beat for the job. That's bore cleaner (Cleaning Compound, Rifle Bore, MIL-C-372—FSN 6850-224-6656 . . . 2-oz bottle; FSN 6850-224-6657 . . . 6-oz can).

Non-authorized solutions with hifalutin names may be the very worst thing you could use on your weapon. Reasons: Some contain ingredients that just gum up the works. Others have stuff in 'em that attack aluminum and plastic. Still others leave bare, unprotected metal.

But good ol' bore cleaner won't hurt anything on your rifle. It's a test-tube baby straight from the Army labs—born for its job.

YOUR M16 PARTS FROZEN?
USE BORE CLEANER ONLY

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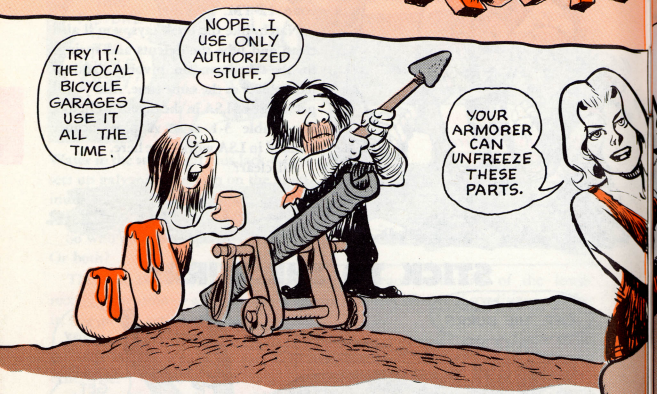

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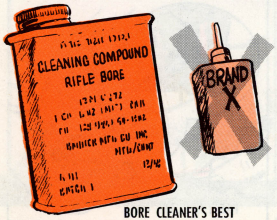

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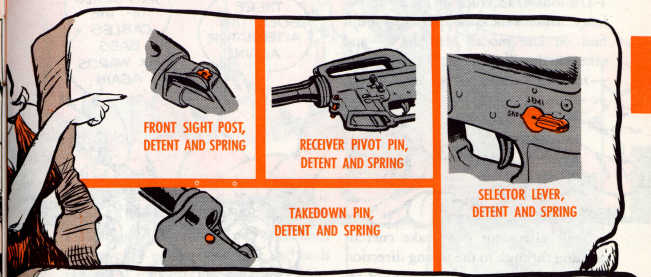
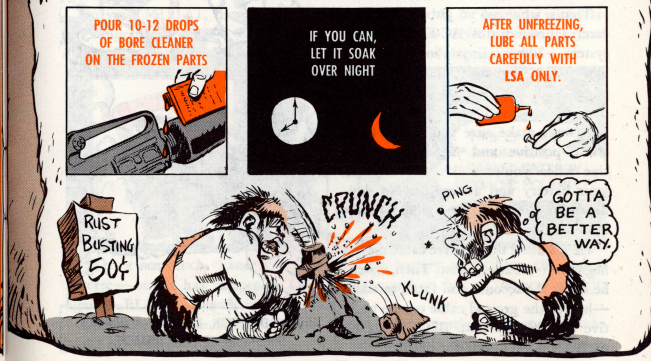
BUSTER DELUXE



Here's how to use it on frozen parts.



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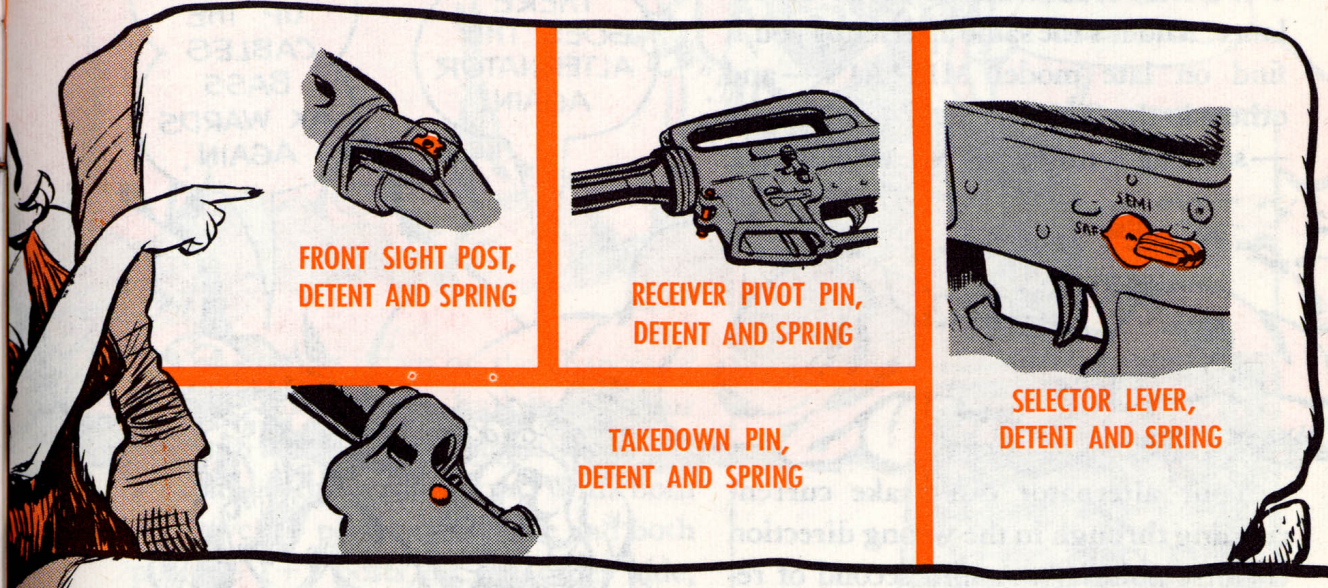

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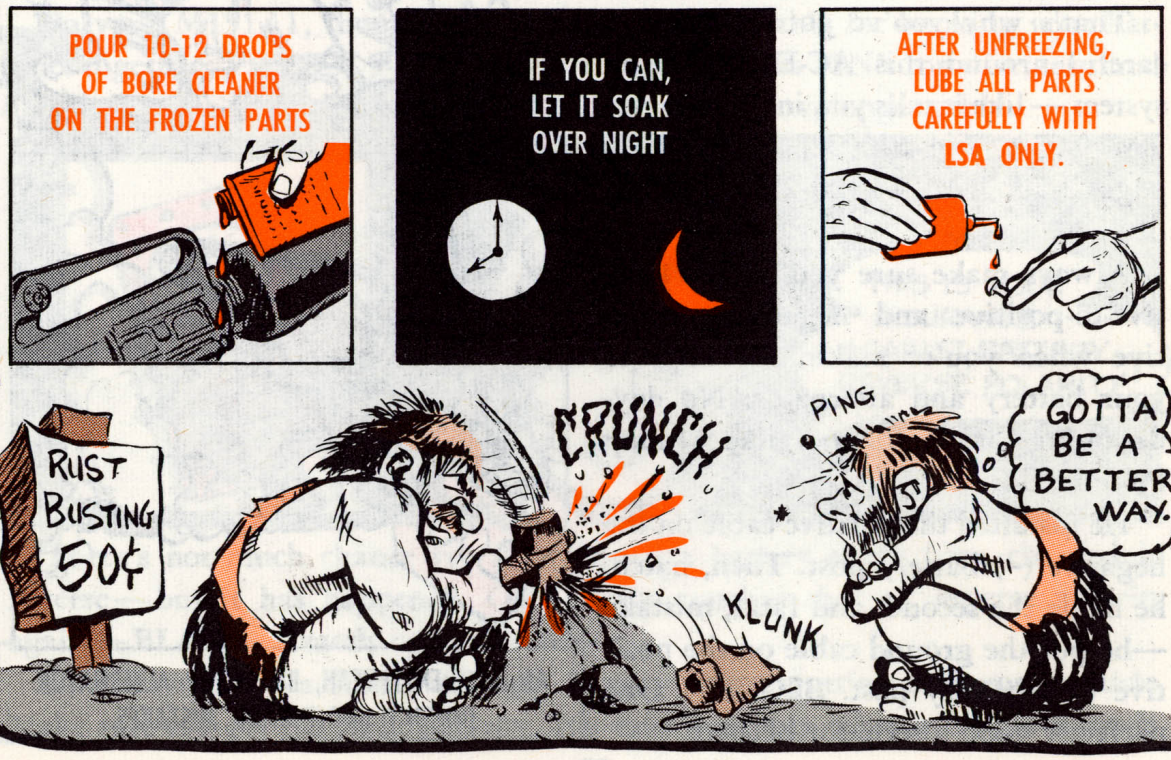
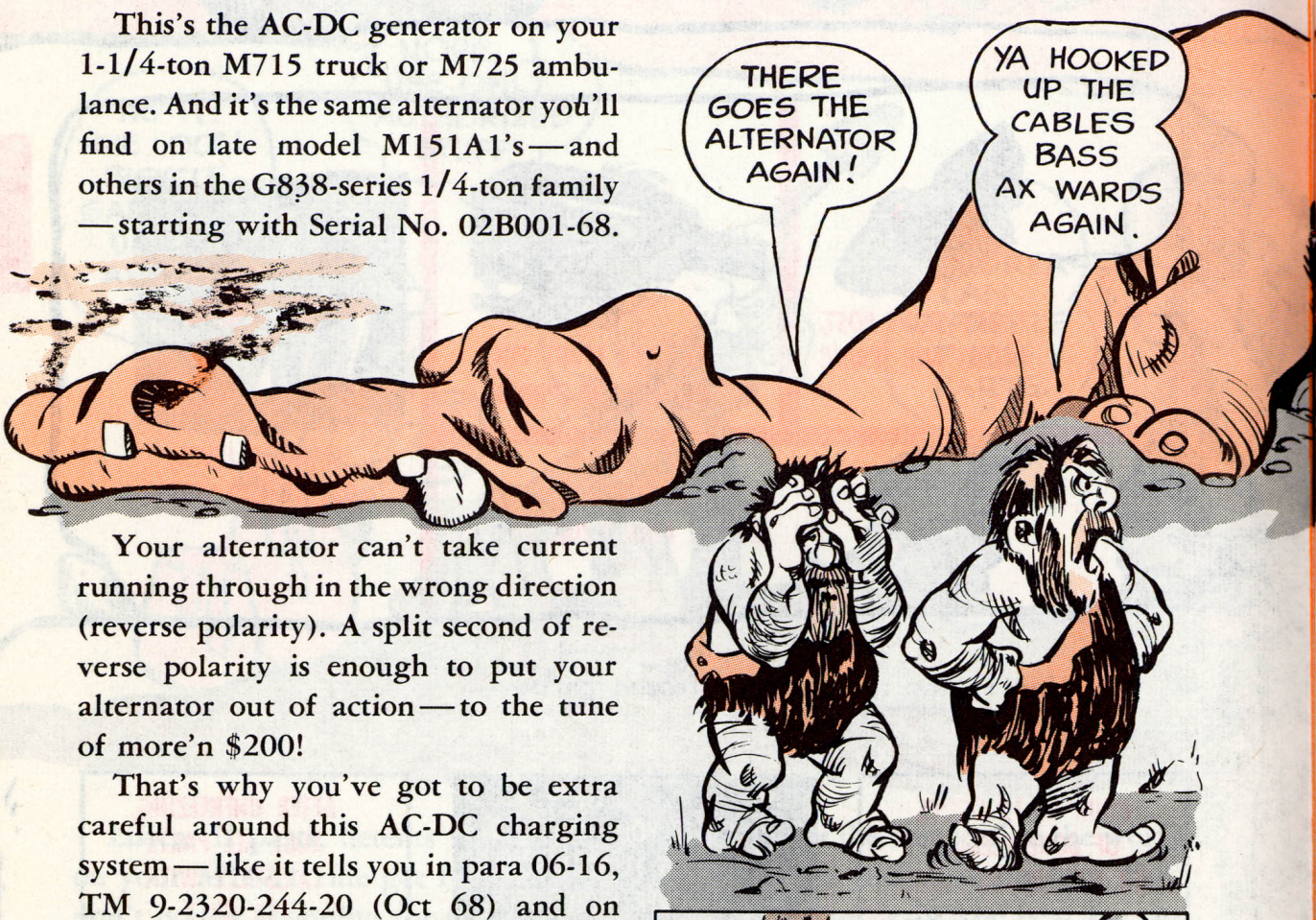


NEW 60-AMP SYSTEM...

ALTER

Watch it! One li'l slip—like touching a battery cable to the wrong battery post—and you'll blow your 60-amp alternator.

This's the AC-DC generator on your 1-1/4-ton M715 truck or M725 ambulance. And it's the same alternator you'll find on late model M151A1's—and others in the G838-series 1/4-ton family—starting with Serial No. 02B001-68.

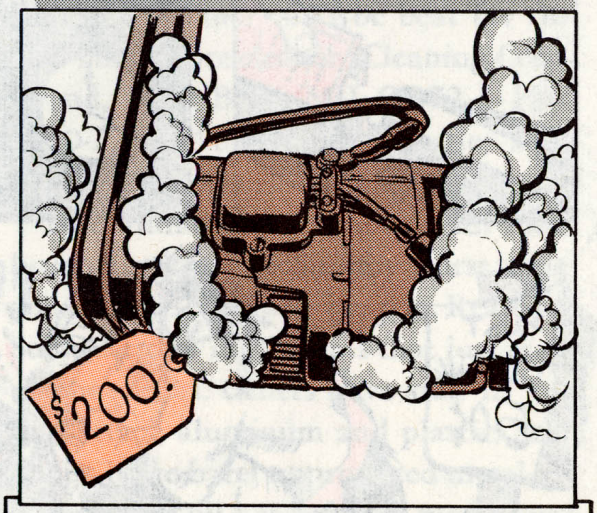


Your alternator can't take current running through in the wrong direction (reverse polarity). A split second of reverse polarity is enough to put your alternator out of action—to the tune of more'n $200!

That's why you've got to be extra careful around this AC-DC charging system—like it tells you in para 06-16, TM 9-2320-244-20 (Oct 68) and on page 2-50, TM 9-2320-218-20 (Aug 68).

Always make sure you've got positive-to-positive and negative-to-negative when you're makin' hookups to your battery and alternator. No daydreaming, or you'll goof like Flubup Fumble did:

He installed the positive cable on the negative (–) battery post. Then, natch, he made the second, and fatal, mistake—he put the ground cable on the positive (+) battery post. BLOOEY! One perfectly good alternator blasted.



AN ACCIDENT? YEAH, BUT YOUR ALTERNATOR DOESN'T UNDERSTAND MISTAKES.

NEW 60-AMP SYSTEM...

ALTER NATOR ALARM

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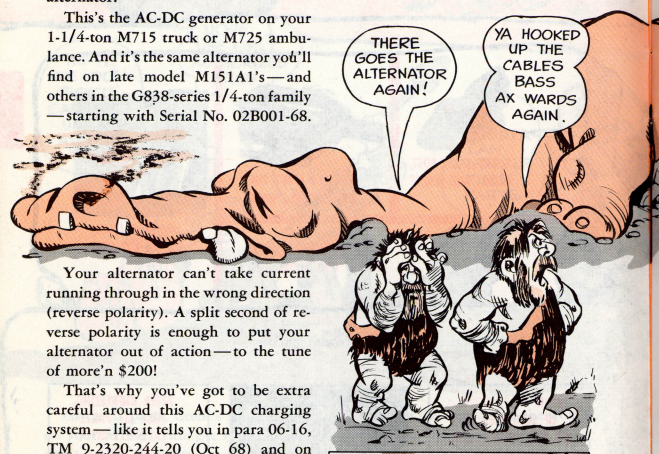

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Always make sure you've got positive-to-positive and negative-to-negative when you're makin' hookups to your battery and alternator. No daydreaming, or you'll goof like Flubup Fumble did:

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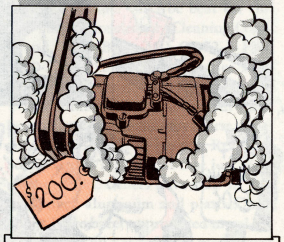
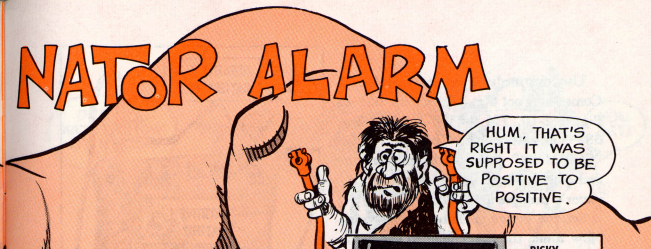
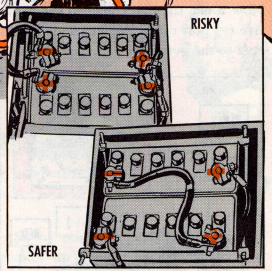


AN ACCIDENT? YEAH, BUT YOUR ALTERNATOR DOESN'T UNDERSTAND MISTAKES.



ACCIDENT INSURANCE

You can cut down on the chances of making this mistake by placing your batteries so it's almost impossible to put a cable on the wrong post. With both negative (–) posts on one side and both positive (+) posts on the other side, you won't have to worry about dropping the cable on the wrong post.



On your M715 and M725, you can use the same cables you've got.

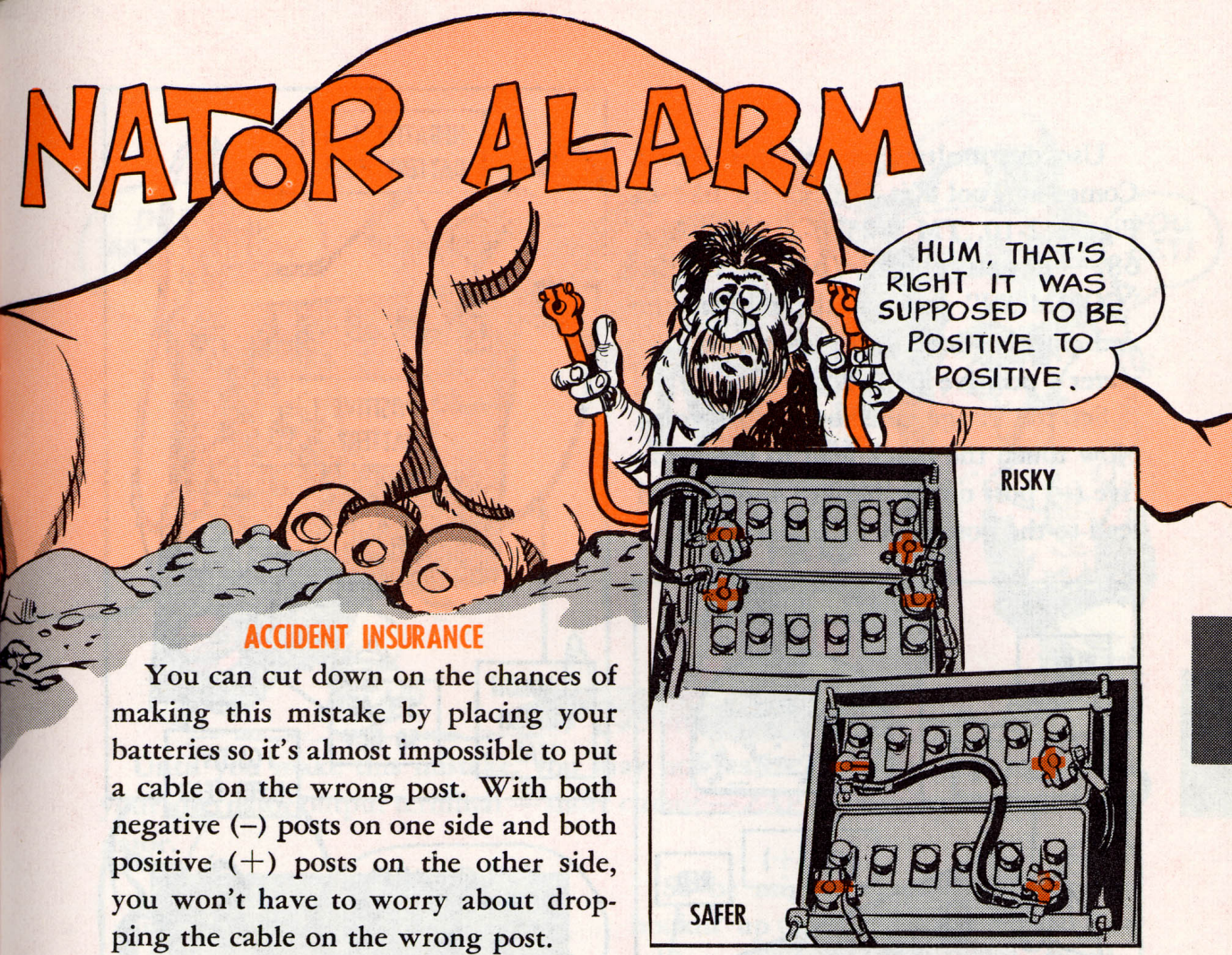
On your M151A1, though, you'll need a longer cable for hooking your batteries together. Your TM 9-2320-218-20P (Apr 68) lists FSN's for wire, terminal lugs, insulation sleeving and marker band to make a new, longer cable.

There's not much chance you'll be issued a battery that's been charged in reverse—but it has happened. Once is too much—that ol' reverse polarity again—BLAM—scratch one alternator.

So always check a freshly-charged battery before putting it in your vehicle. Make sure it's got the right polarity. It's easy and only takes a coupla seconds.

(PS) MORE

NATOR ALARM



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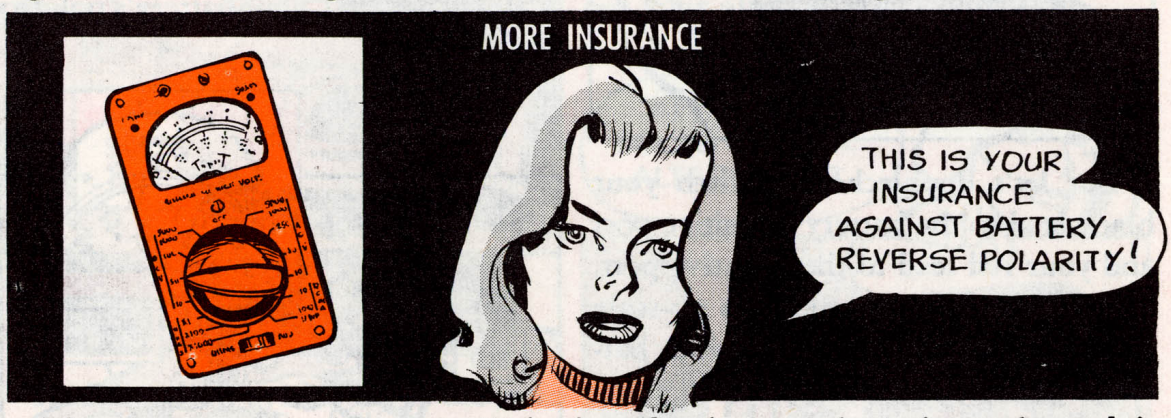

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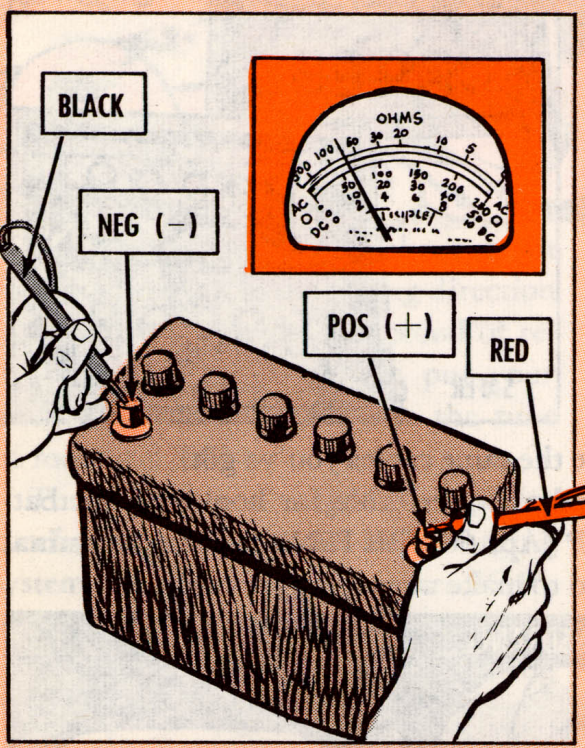
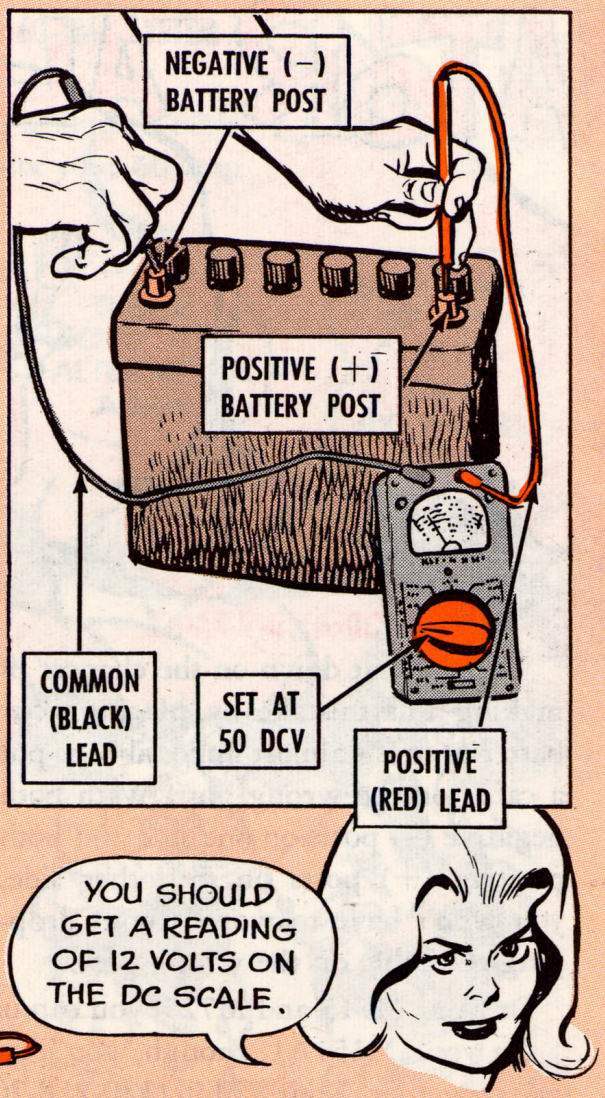
MORE ON INSURANCE

Use the multimeter in your No. 1 Common Tool Kit. Set 'er up like in Figure 2-10, TM 9-2320-218-20 (Aug 68)—negative lead (black) to the "COMMON" jack on the multimeter and positive lead (red) to the multimeter's positive (+) jack.

Set the range selector on 50 volts. Now touch the black lead to the negative (–) post on the battery and the red lead to the positive (+) battery post.



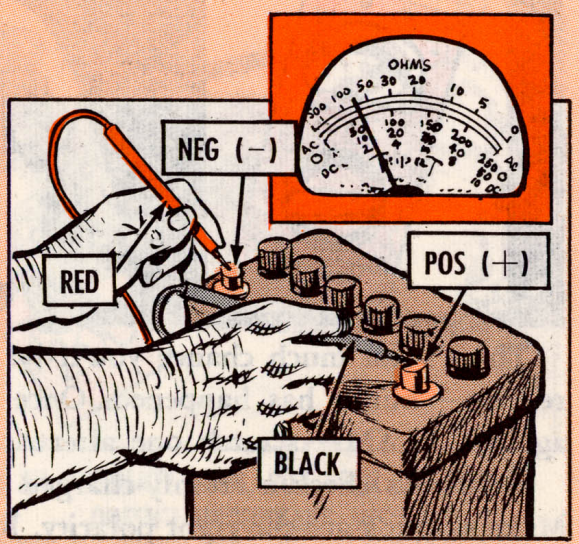


If your meter needle tries to go down-scale (to the left), your battery's polarity is reversed.

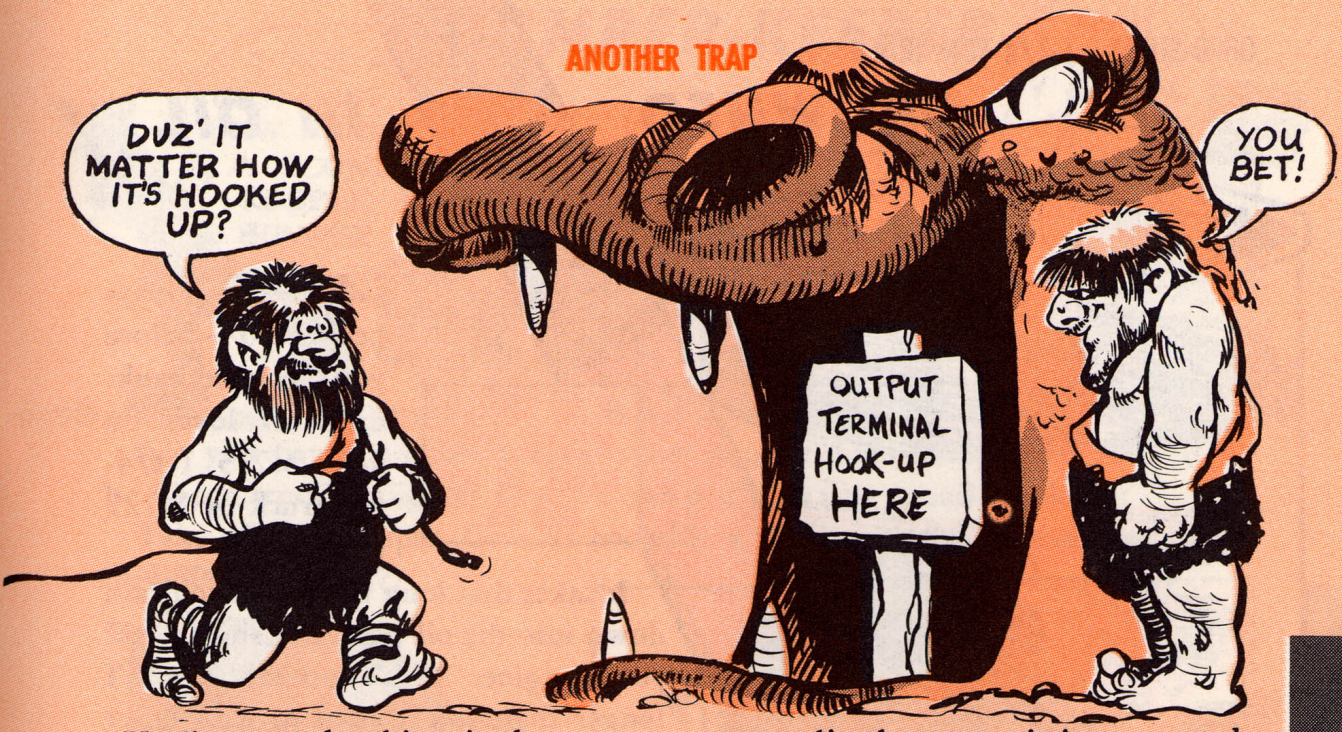
But let's doublecheck. Switch your black lead to the battery's positive post and your red lead to the negative post. Now if the meter needle goes up-scale (to the right), you can be sure your battery's polarity is reversed.

In either hookup, if the meter needle doesn't move at all, your battery's dead.

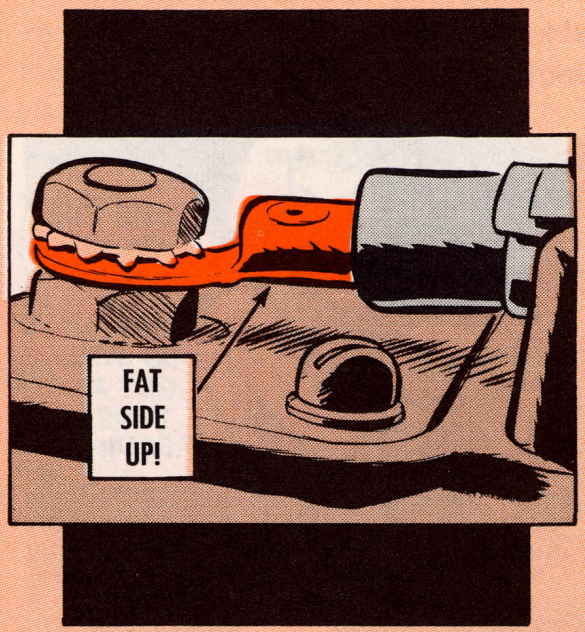
If your battery's dead or has reverse polarity, turn it in for another—and check that one for reverse polarity, too.



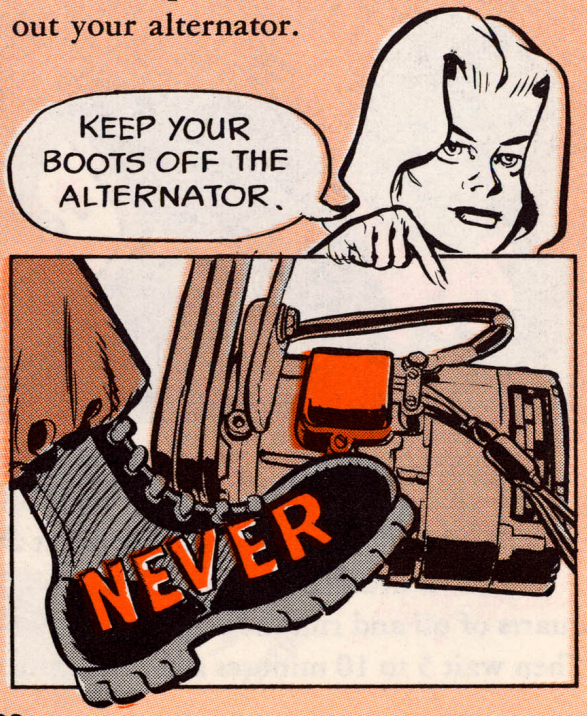
ANOTHER TRAP



Until you make this mistake, you may not realize how easy it is to ground your alternator output terminal — short circuit — ZAP — curtains for your alternator.



So be mighty careful when you're hookin' up to this output terminal. The cable terminal lug is fatter on one side. This side goes UP. If you goof and install the fat side down, the lug will touch the plate underneath and short out your alternator.

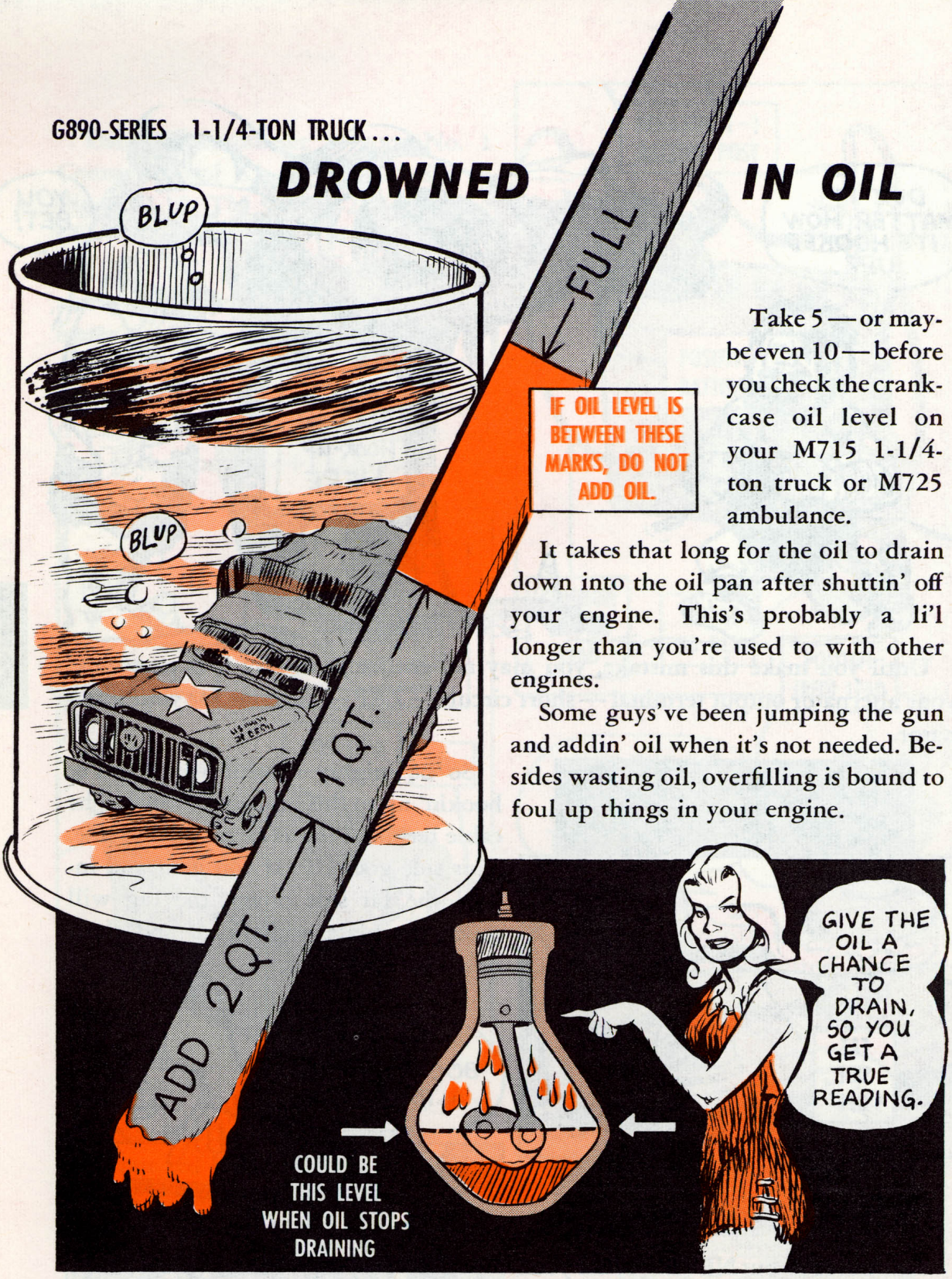


And never — but NEVER — use your alternator for a step or footrest while working in the engine compartment. A little pressure on that terminal cover will mash the cover down on the output terminal — short circuit — ZOWEE — no alternator.

PS END

G890-SERIES 1-1/4-TON TRUCK . . .

DROWNED IN OIL



Take 5 — or maybe even 10 — before you check the crankcase oil level on your M715 1-1/4-ton truck or M725 ambulance.

It takes that long for the oil to drain down into the oil pan after shuttin' off your engine. This's probably a li'l longer than you're used to with other engines.

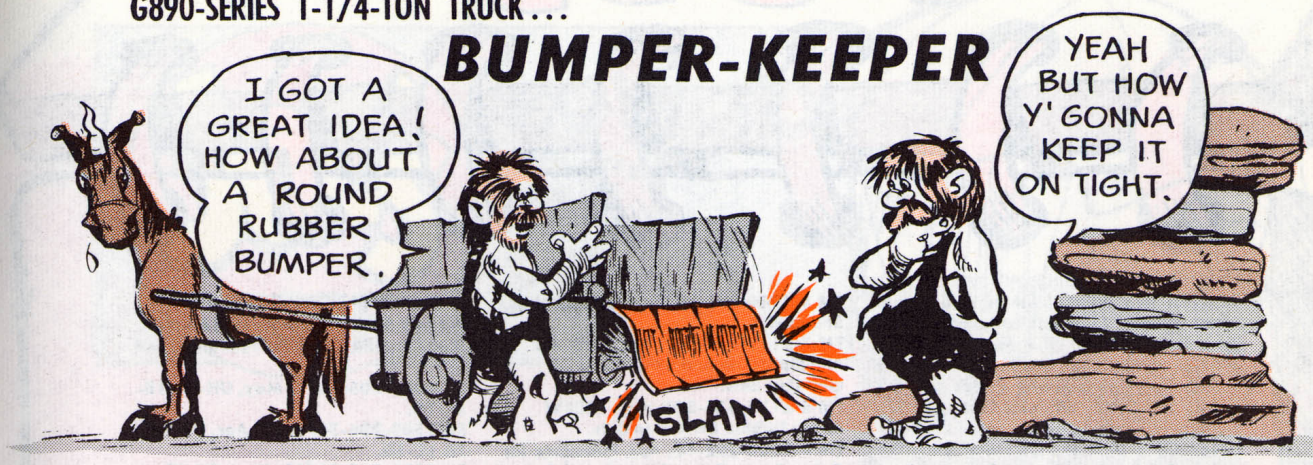
Some guys've been jumping the gun and addin' oil when it's not needed. Besides wasting oil, overfilling is bound to foul up things in your engine.

And never add oil if your dipstick shows the level's over the "ADD 1 QT." mark—that is, between "1 QT." and "FULL." Like it says on page 46 of your TM 9-2320-244-10 (Aug 68), adding oil at this level "is not necessary or desirable."

If you've drained your crankcase oil and installed a new oil filter, put in 6 quarts of oil and run the engine a few minutes to give the filter a chance to fill. Then wait 5 to 10 minutes after shutting down before checkin' your oil level.

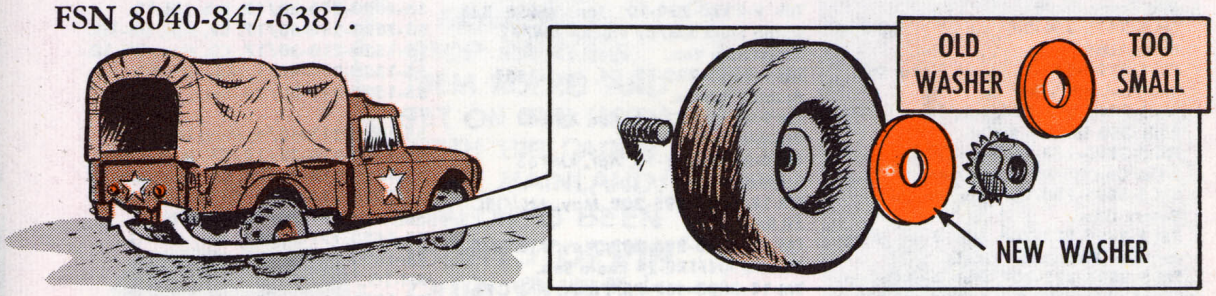
G890-SERIES 1-1/4-TON TRUCK . . .

BUMPER-KEEPER



Are you havin' trouble keepin' those round rubber bumpers on your M715 1-1/4-ton truck's tailgate? Here's a cheap 'n' easy way to nail 'em down:

Take off the bumper. Give its backside a thin coat of Adhesive, paste-type, FSN 8040-847-6387.



Toss out that li'l flat washer and get Washer, flat, FSN 5310-809-4061. It's 1 inch across and will fill the recess in your rubber bumper. Give your new washer a coat of OD paint and let 'er dry.

Now put 'em together — bumper, flat washer, nut-lockwasher — and snug 'er down.

NO NEED TO SMELL

Dear Half-Mast,

The brake fluid, HB, FSN 9150-231-9071, that we use does not have the characteristic odor of brake fluid. Some inspectors write this up as a gig. Should all of the HB brake fluid have the same odor?

Mr. G. F.

Dear Mr. G. F.,

No. Brake fluid, HB, FSN 9150-231-9071, is made by various manufacturers according to Fed Spec VV-B-680. This specification does not include an odor requirement so the inspector should not gig you if it does not have a specific odor. As long as the brake fluid meets that Fed Spec you should be able to use it.

Half-Mast

PUBS

This is a selected list of recent pubs of interest to organizational maintenance personnel. The list is compiled from recent AG Distribution Centers Bulletins. For complete details see DA Pam 310-4 (May 68), and Ch 5 (Apr 69), TM's, TB's, etc.; DA Pam 310-6 (Jul 68), and Ch 3 (Apr 69), SC's and SM's; DA Pam 310-7 (Mar 69), MWO's.

TECHNICAL MANUALS

TM 5-3810-201-12, Mar, 40 Ton DED Crawler Mtd Crane-Shovels.
TM 5-3810-202-20P, Mar, 20 Ton Trk Mtd Crane-Shovel.
TM 5-3820-236-20P, Apr, 9 Ft Skd Mtd Earth Auger.
TM 5-3820-240-25P, Apr, Sinker Drill and Paving Breaker.
TM 5-3895-271-20P, Feb, 13 to 18 Ton Rolls GED Tandem Roller.
TM 5-3895-278-15, Mar, Oil/Steam 3 Car Cap Trlr Mtd Bitum Heater.
TM 5-3895-280-20P, Apr, DED SP Rotary Tiller.
TM 5-3895-287-20P, Mar, Bitum Mixer for 100 TPH Asphalt Plant.
TM 5-3895-321-20P, Mar, Dust Collecting Machine DED Semitrailer Mtd 100-150 TPH Mdl KA-60 Comp of Asp Mix Plant.
TM 5-4120-215-20P, Apr, Air Conditioner: 3 Ph 400 Hz Floor Mtd Air Cooled 38,000 BTU/HR 416V 38,000 BTU/HR 208V and 50,000 BTU/HR 208V.
TM 5-4120-270-15, Apr, 60,000 BTU and 49,000 BTU Air Conditioners.
TM 5-4120-274-15, Mar, 9,000 BTU 115230/208V Air Conditioners.
TM 5-4320-208-20P, Apr, 125 GPM Fresh Water Centrif Pumps.
TM 5-4520-236-14, Apr, 15,000 BTU Space Heaters.
TM 5-4940-213-20P, Mar, Set 5 Electronic Repair Shop Equip.
TM 5-4940-221-15, Feb, Contact Maint Shop Set 3.
TM 5-6115-271-20P, Apr, 3KW AC 400 Hz/60 Hz and 3KW 60 Hz DC GED Gen Sets.
TM 5-6115-434-20P, Apr, 100KW 60 Hz Turbine Drive Gen Sets.
TM 9-1000-202-10, Apr, Procedure for Estimating or Determining Remaining Round Life of Cannon Tubes of Tanks, SP and Towed Guns and Howitzers and Recoilless Rifles.
TM 9-2300-257-20P, Mar, M113A1 Diesel Powered Carrier Family.
TM 9-2320-230-10, Jan, M656 8x8 Cargo Truck XM757 Tractor XM791 Expansible Van.
TM 9-2350-230-12, C4, Apr, M551 Assault Vehicle.
TM 9-4931-333-14, Apr, XM163 20-MM Gun.
TM 9-4931-339-13, Apr, XM163 20-MM Gun.
TM 11-5820-295-20P, May, AN/GRC-19 Radio Set.
TM 11-5820-296-20P, May, AN/MRC-73 and AN/TRC-24 Radio Sets.
TM 11-5820-467-25P, May, AN/GRA-50 Radio Set.
TM 11-6615-242-25P, Mar, Gyroscopic Compass System Type C-12 (Dist in pub as reads DA Form 12-26 should be amended to read DA Form 12-36) U-6A U-8D.
TM 11-6720-239-12, Apr, KS-101A Still Pic Camera Set.
TM 11-6720-242-12, Apr, KA-60C Still Pic Camera.
TM 11-6740-283-12, Mar, Photographic Processing Mach EH-81A.
TM 11-6760-244-12, Apr, OV-1A-1B-1C Camera LS-86A Test Set.
TM 11-6780-227-15, Apr, KS-109A Picture Taking and Processing Photographic Set.

MODIFICATION WORK ORDERS

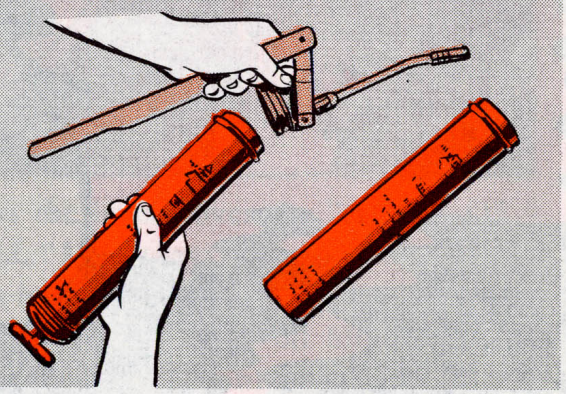
9-1240-200-40/2, Apr, M48A3 M60 M60A1 M728 (T118E1) Tanks and CEV.
55-1500-206-30/1, May, UH-1A-1B-1C-1D.
55-1500-206-30/2, C2, Apr, UH-1A-1B-1C-1D.
55-1500-210-30/18, May, CH-47.
55-1510-201-40/2, C1, May, U-8.
55-1510-203-30/7, C1, Apr, U-6.
55-1510-203-30/7, C2, May, U-6.
55-1510-205-40/2, Feb, U-1.
55-1520-209-30/78, May, CH-47.
55-1520-210-30/13, Feb, UH-1D.
55-1520-210-30/17, C2, Apr, UH-1D.
55-1520-210-30/17, C3, May, UH-1D.
55-1520-210-40/1, May, UH-1D.
55-1520-211-30/35, May, UH-1A-1B-1C.
55-1520-211-40/5, May, UH-1C.
55-1520-214-30/18, C1, May, OH-6.
55-1520-214-30/28, C1, May, OH-6.
55-1520-214-40/1, C2, May, OH-6.
55-1520-217-30/30, Apr, CH-54.
55-1520-221-30/12, Apr, AH-1G.
55-1520-221-30/12, C1, May, AH-1G.
55-1520-221-30/25, May, AH-1G.

MISCELLANEOUS

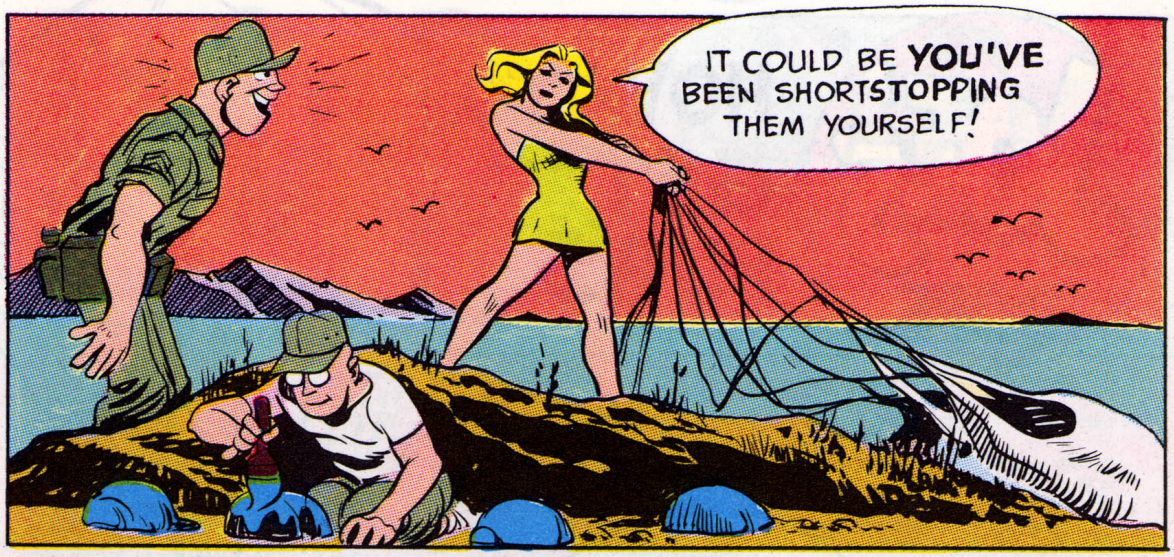
FM 38-1, Mar, Logistics Supply.
FT 155-Q-4, C2, Apr, 155-MM Howitzers.
LO 5-3740-208-12, Apr, 40 GPH Pest Control Sprayer.
SB 11-576, Apr, AN/PRC-6 AN/PRC-8 AN/PRC-9 AN/PRC-10 AN/PRC-25 AN/PRC-28 AN/PRC-77 AN/PRR-9 AN/PRT-4 Radio Sets.
SC 5180-91-CL-R13, Apr, TK-101/G Electronic Equip Tool Kit.
SC 5180-91-CL-S21, Mar, TK-100/G Electronic Equip Tool Kit.
TC 17-12, C1, May, M551 Assault Vehicle.

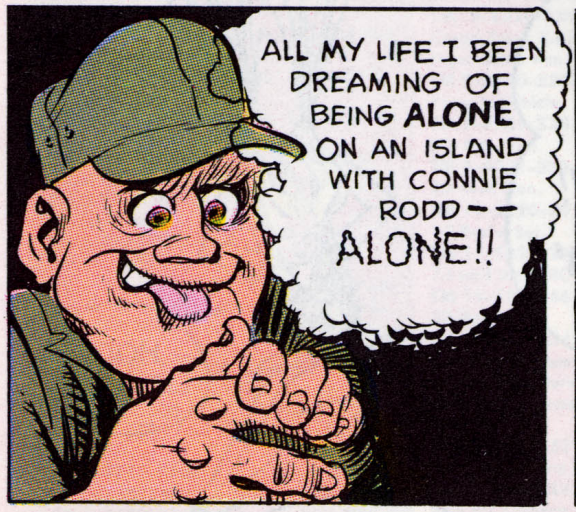
GREASE GUN CARTRIDGE

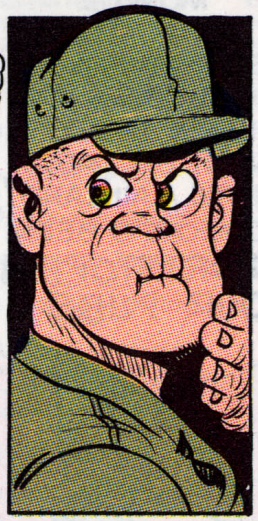
There's a handy dandy way to get rid of a dirt problem when you fill your grease gun. Use a grease gun cartridge in your gun instead of the dunking method. The GAA grease comes in a 14-oz cartridge under FSN 9150-935-1017, for use with grease gun, type 1, MIL-G-3859, FSN 4930-253-2478.



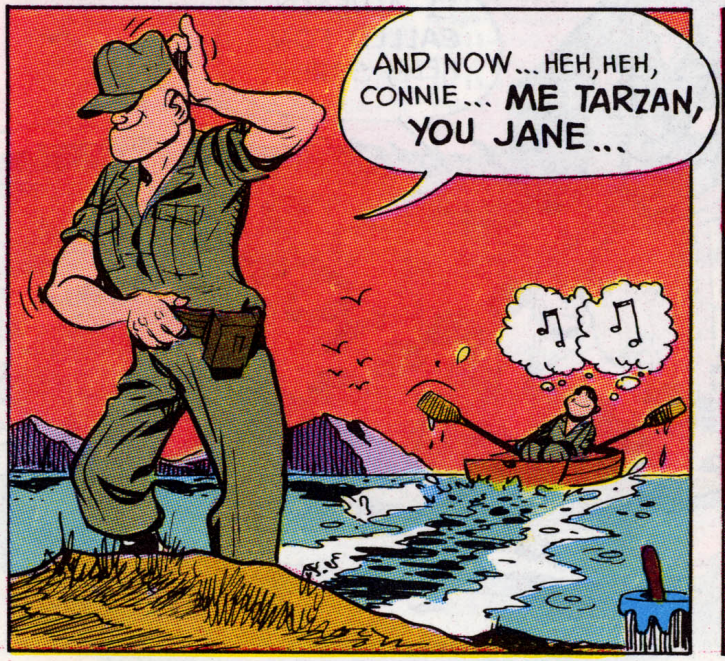
JOE'S DOPE
HOW TO GET PUBS
MONROE GRAZCWICZ... STOP PAINTING THEM ROCKS AND GET ON THE HORN WITH BIG DADDY ON THE MAINLAND!! SOMEONE'S BEEN SHORTSTOPPIN' OUR PUBS!
HOLD ONE!
I ALREADY CALLED FOR HELP, SARGE!
WE CONTACT ANYONE
1013TH OFFSHORE COMMUNICATIONS DETACHMENT

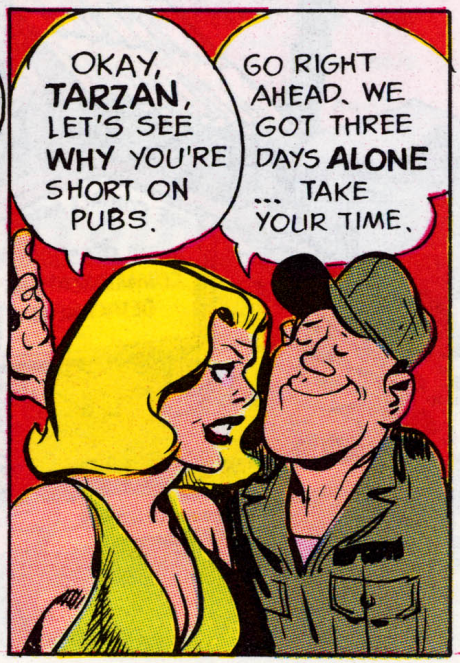

IT COULD BE YOU'VE BEEN SHORTSTOPPING THEM YOURSELF!


ALL MY LIFE I BEEN DREAMING OF BEING ALONE ON AN ISLAND WITH CONNIE RODD -- ALONE!!



ER... SAY GRAZCWICZ HOW WOULD YOU LIKE A 3-DAY RAND R?
YEAH, SURE!


AND NOW... HEH, HEH, CONNIE... ME TARZAN, YOU JANE...


OKAY, TARZAN, LET'S SEE WHY YOU'RE SHORT ON PUBS.
GO RIGHT AHEAD. WE GOT THREE DAYS ALONE ... TAKE YOUR TIME.

* IF YOU'RE A SEPARATE COMPANY, BATTERY OR DETATCHMENT, THE FORMS GO DIRECT TO THE CENTERS!

JOE'S Dope Sheet

PINPOINT

Baltimore

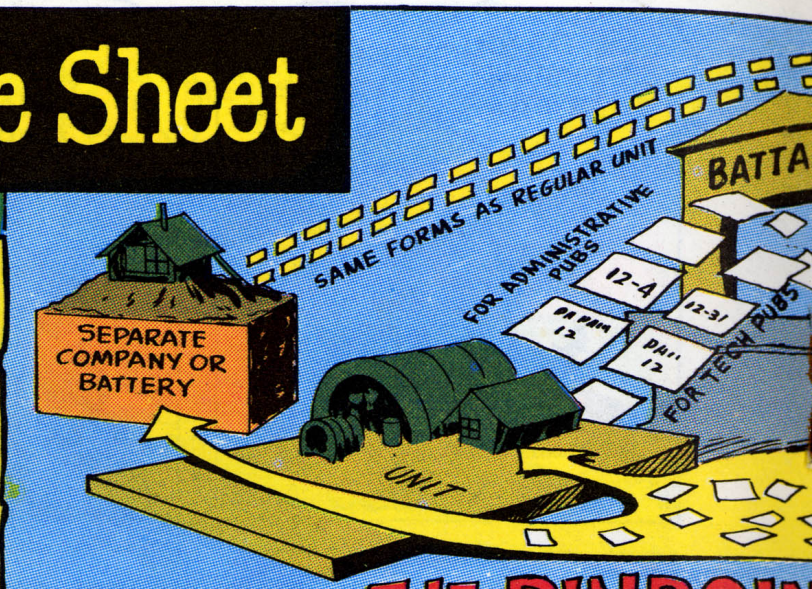
12-4	Administrative Pubs (Except Regs & Circulars)
12-8	Allied Communication
12-9	Regulations & Circulars
12-11	Doctrinal Pubs (FM's)
12-12	TOE's & Training Pubs

St. Louis

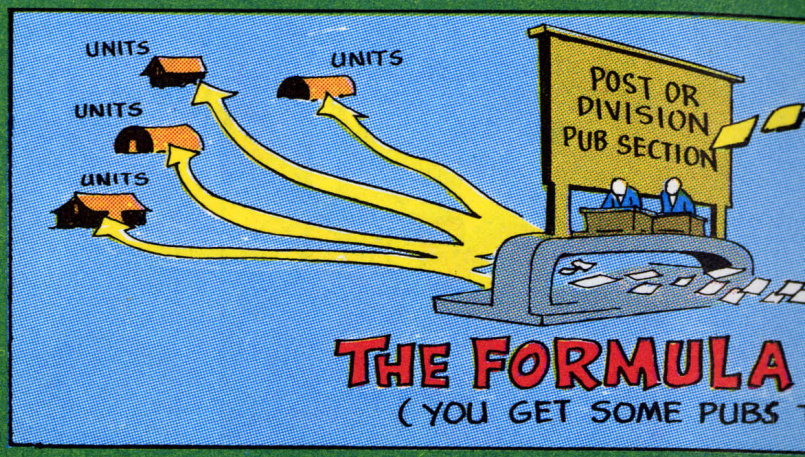
12-21	Supply Catalogs
12-25	Mobility Support Equipment
12-31	Army Aviation Pubs
12-32	Missiles and Rockets
12-34	Technical and Supply Pubs
12-35	Nuclear Weapons
12-36	Army Avionics
12-37	Tracked Vehicles
12-38	Trucks
12-39	Dolly, Trailer & Semi-Trailer
12-40	Artillery and Small Arms
12-41	Sighting & Fire Control
12-43	COMSEC
12-50	Radiac and Fixed Radios
12-51	Field Radios

FORMULA

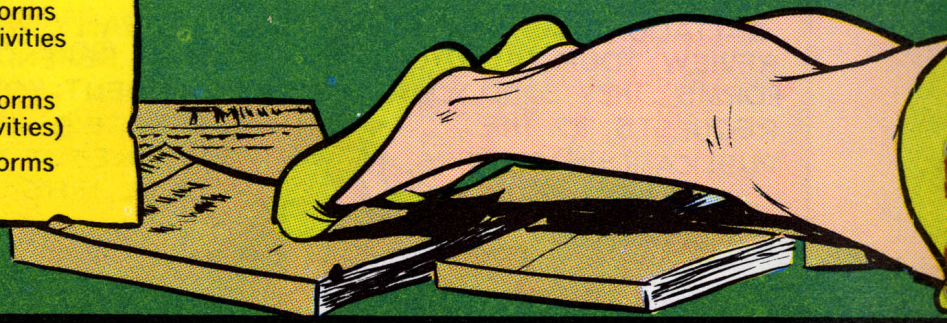
12-1	Pubs and Blank Forms (Installations, Activities and Commands)
12-2	Pubs and Blank Forms (Service type activities)
12-3	Pubs and Blank Forms (TOE units)



THE PINPOIN

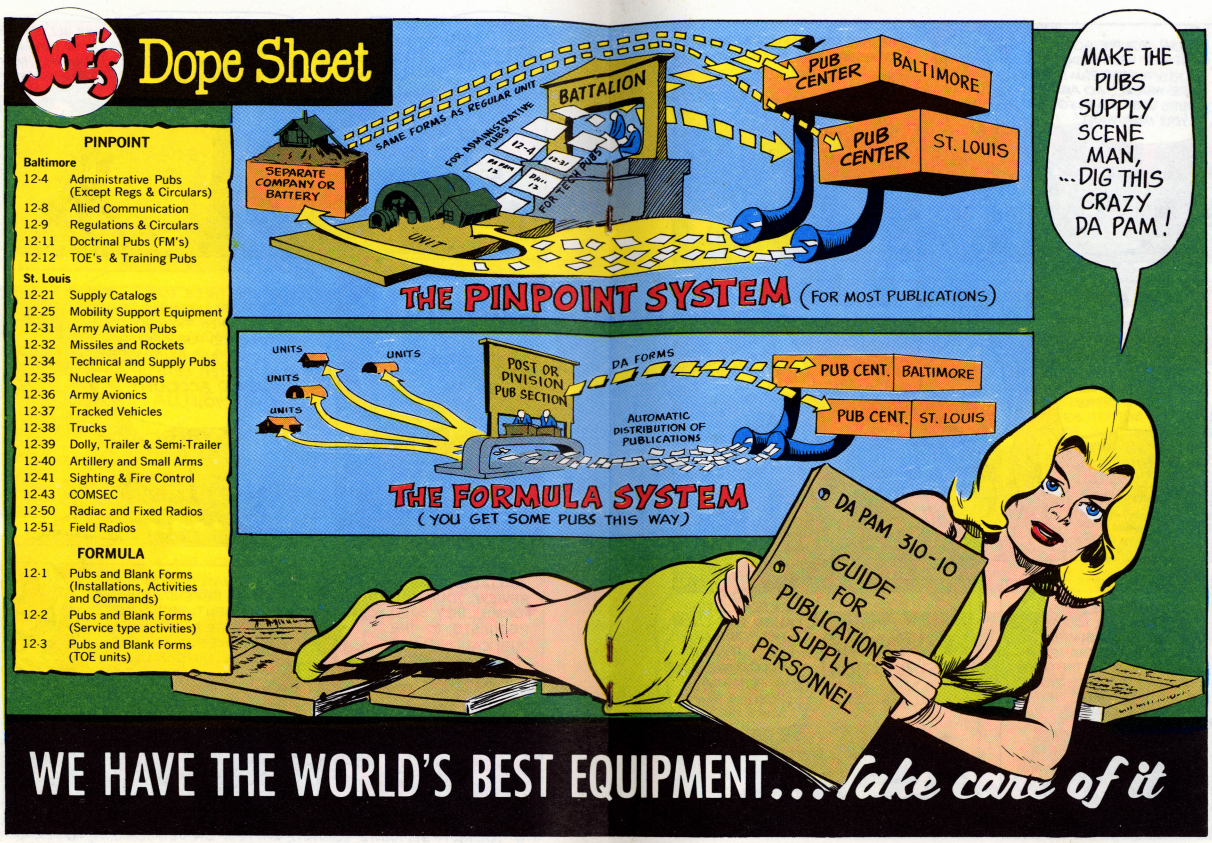


THE FORMULA
(YOU GET SOME PUBS



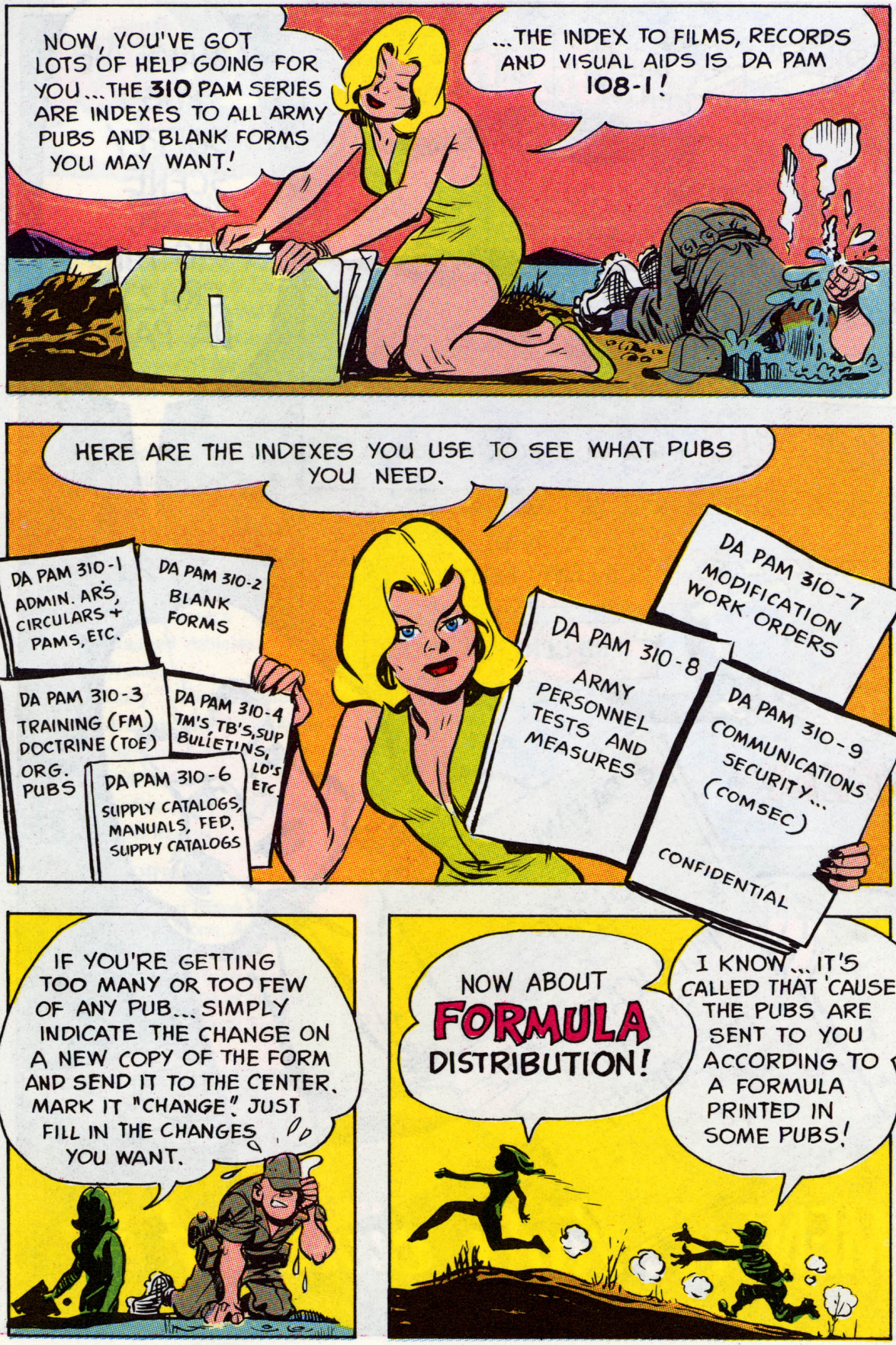
WE HAVE THE WORLD'S BEST EQ

IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULL



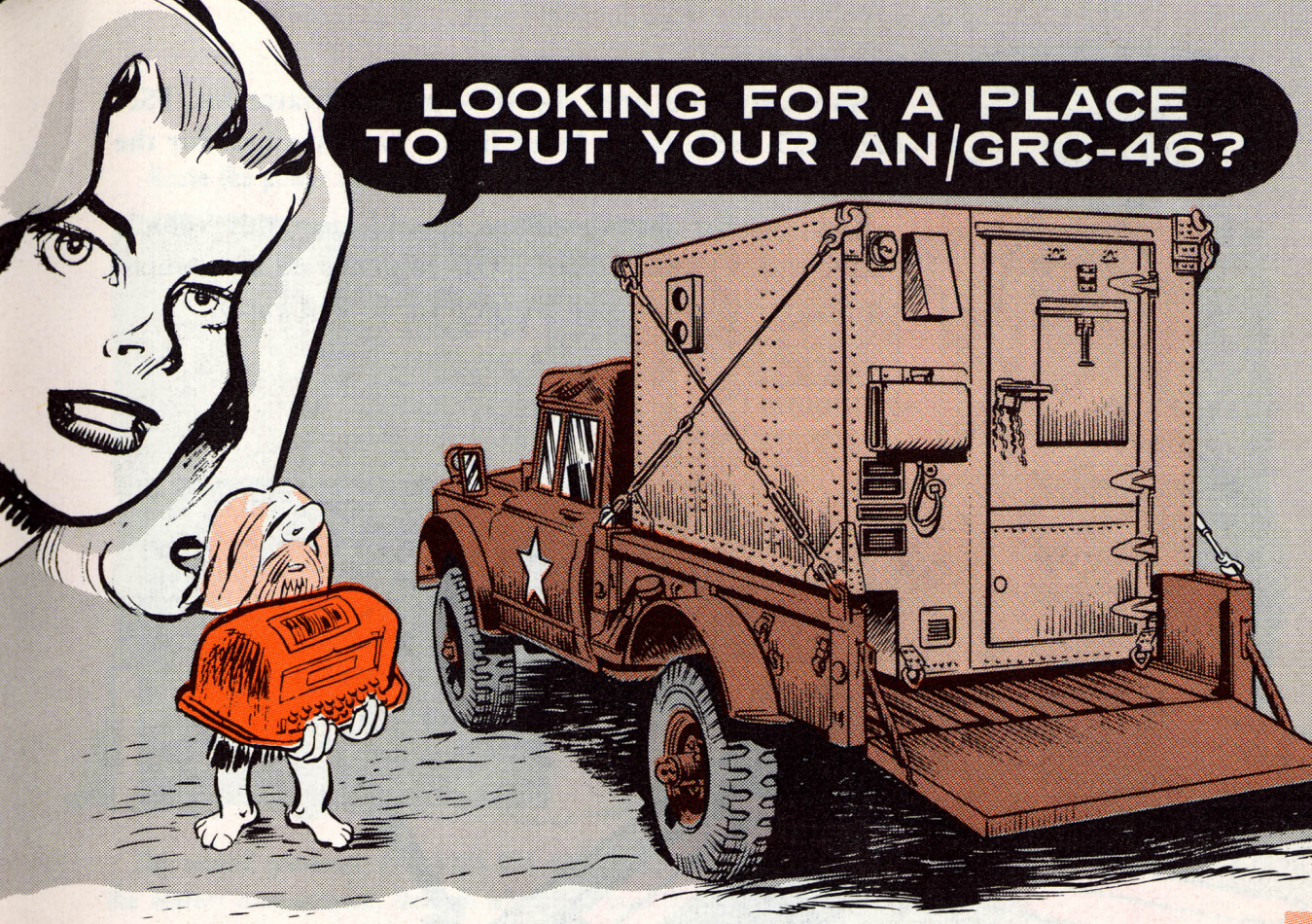
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

LETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.


NOW, YOU'VE GOT LOTS OF HELP GOING FOR YOU...THE 310 PAM SERIES ARE INDEXES TO ALL ARMY PUBS AND BLANK FORMS YOU MAY WANT!
...THE INDEX TO FILMS, RECORDS AND VISUAL AIDS IS DA PAM 108-1!
HERE ARE THE INDEXES YOU USE TO SEE WHAT PUBS YOU NEED.
DA PAM 310-1 ADMIN. ARS, CIRCULARS + PAMS, ETC.
DA PAM 310-2 BLANK FORMS
DA PAM 310-3 TRAINING (FM) DOCTRINE (TOE) ORG. PUBS
DA PAM 310-4 TM'S, TB'S, SUP BULLETINS, LO'S ETC.
DA PAM 310-6 SUPPLY CATALOGS, MANUALS, FED. SUPPLY CATALOGS
DA PAM 310-7 MODIFICATION WORK ORDERS
DA PAM 310-8 ARMY PERSONNEL TESTS AND MEASURES
DA PAM 310-9 COMMUNICATIONS SECURITY... (COMSEC) CONFIDENTIAL
IF YOU'RE GETTING TOO MANY OR TOO FEW OF ANY PUB... SIMPLY INDICATE THE CHANGE ON A NEW COPY OF THE FORM AND SEND IT TO THE CENTER. MARK IT "CHANGE". JUST FILL IN THE CHANGES YOU WANT.
NOW ABOUT FORMULA DISTRIBUTION!
I KNOW... IT'S CALLED THAT 'CAUSE THE PUBS ARE SENT TO YOU ACCORDING TO A FORMULA PRINTED IN SOME PUBS!

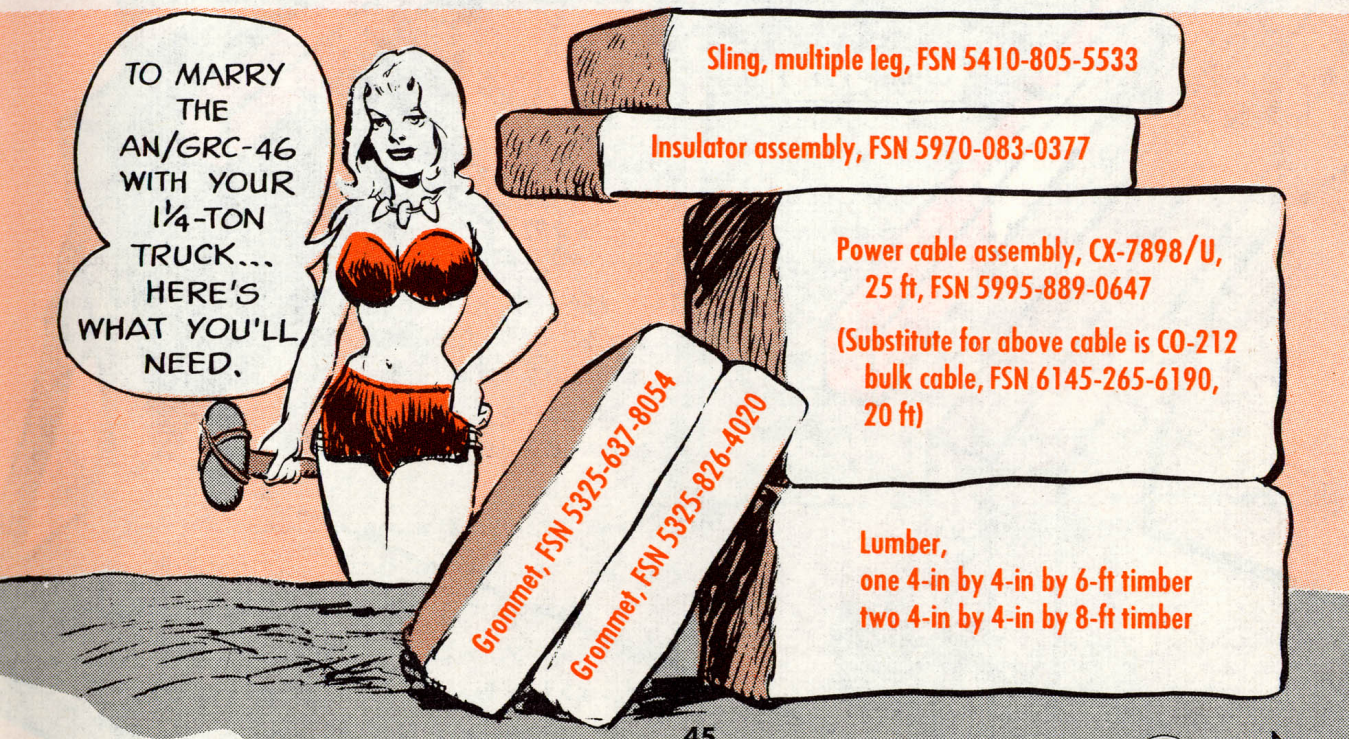
YES... AND DA FORMS 12-1, 12-2 AND 12-3 GET YOU INTO THE FORMULA SYSTEM!
AND IF YOU NEED MORE COPIES OF A PARTICULAR PUB... OR IF YOU WANT ONE YOU DIDN'T GET AUTOMATICALLY?
YOU SEND IN A DA FORM 17... LIST HOW MANY Y'NEED - AND JUSTIFY WHY Y'NEED 'EM!
YOU REVIEW AND REVISE YOUR NEED AT REGULAR INTERVALS.
N-A-T-C-H, YOU KEEP YOUR DA PAM 310-10 HANDY FOR GUIDANCE... WATCH THE AG BULLETINS FOR THE LATEST IN NEW OR CHANGED PUBS AND FORMS COMING OUT!! BE SURE TO SEND IN YOUR WRITE-IN ORDERS TO THE CENTERS.
HMM... YOU SEEM TO KNOW WHAT IT'S ALL ABOUT... SO, WHY ARE YOU LOW ON PUBS?
GASP... I DUNNO
I DUNNO GASP
I GIVE UP

...THREE DAYS ALL SHE'S TALKED ABOUT IS PUBS I'M STILL ON THE 50 YARD LINE
HEY, SARGE!
I GOT ALL OUR PUBS... PICKED 'EM UP AT OUR LAST LOCATION. BOY, WOTTA LOAD!
NO WONDER WE AIN'T BEEN GETTING THEM... YOU NEVER NOTIFIED THE PUB CENTERS OF OUR NEW ADDRESS WHEN WE MOVED.
OH, NO!
HMMM, NOW YOU'VE GOT TOO MANY PUBS FOR YOUR NEW SITUATION! WHAT'S NEEDED IS TO GO OVER YOUR 12 SERIES FORMS, AND UPDATE YOUR REQUIREMENTS!
THIS COULD TAKE A COUPLE OF DAYS—YOU'RE SO FAR BEHIND!
GRAZCWICZ, HOW'D YOU LIKE ANOTHER 3-DAY PASS!
ER, SURE, YEH! YEH! YEH!
NOW, CONNIE, WOULD YOU EXPLAIN HOW TO DO THIS ...SLOWLY!!



Forget that salvage yard trip. You can so put your AN/GRC-46 radio teletypewriter set on your new M715 5/4 ton truck.

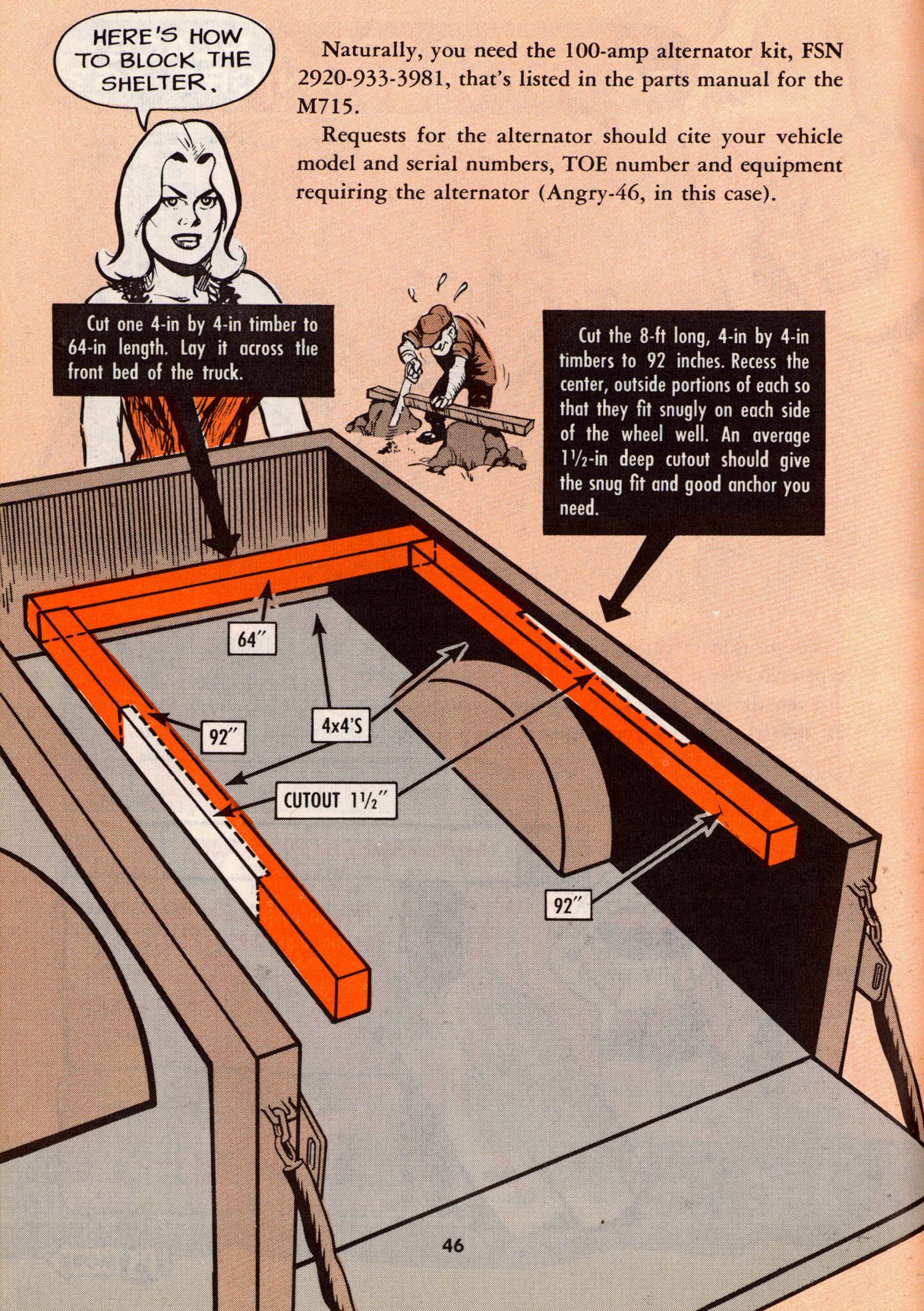
Even though there'll be no installation unit available through the revised SB 11-131, you and your support can put together a practical substitute.



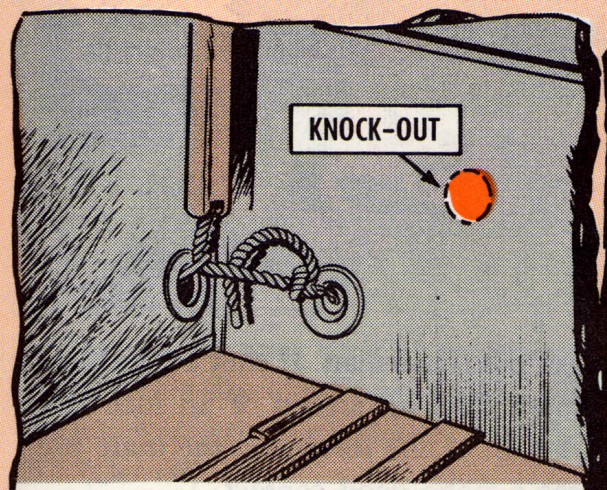
PS MORE

Naturally, you need the 100-amp alternator kit, FSN 2920-933-3981, that's listed in the parts manual for the M715.

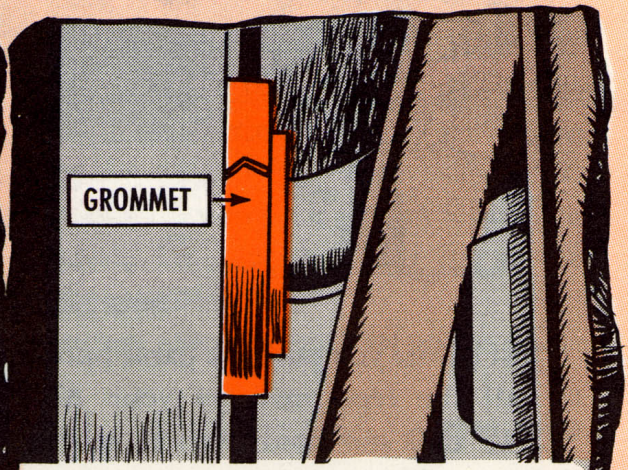
Requests for the alternator should cite your vehicle model and serial numbers, TOE number and equipment requiring the alternator (Angry-46, in this case).



Route the power cable like so:

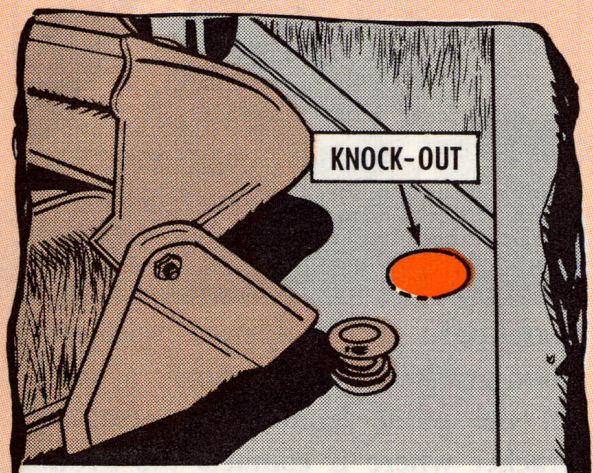


Remove the knock-out from the front wall of the truck bed (about a foot above the bed, behind the operator's side of the cab).

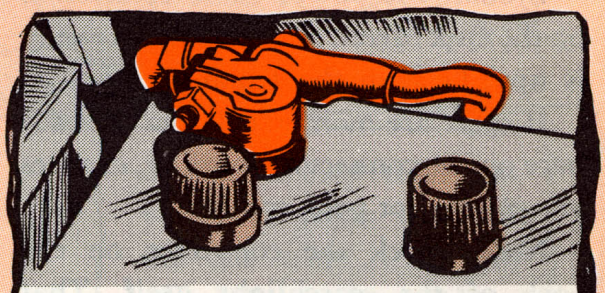


Use grommet, FSN 5325-637-8054, around the edges of the knock-out hole. It protects the cable from the sharp edges.

The second grommet, FSN 5325-826-4020, dulls the edges of the knock-out hole on the bottom of the battery compartment, through which you feed the other end of the power cable.



Depending on the production date of your M715, the second knock-out is on the cab behind the driver's seat . . . or in the cab floor. No matter. When you open it, use insulator FSN 5970-083-0377 where the cable goes through the cab.

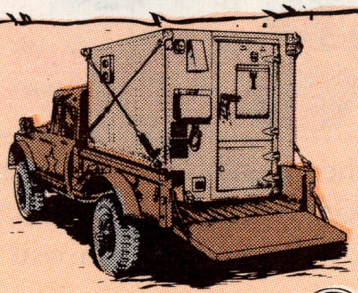


Of course, you use the 6TN 100-amp hour batteries, FSN 6140-057-2554, with the 100-amp alternator kit. The batteries are in TM 9-2320-244-20P (Oct 68).

Be careful when you're dangling the hot battery lead around. Even a quick, accidental touch to the negative post, the truck body or frame can blow out the alternator if one end of the hot lead is connected.

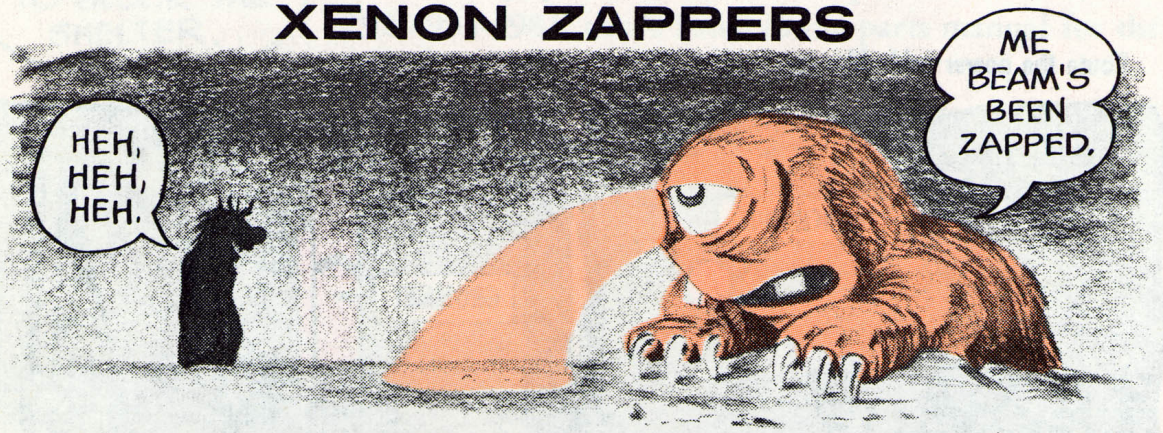
Adjust the sling to the eyes of the shelter and truck, as appropriate.

The installation hardware and cables cited are in SB 11-131 and publications on the Angry-46 and 5/4 truck.

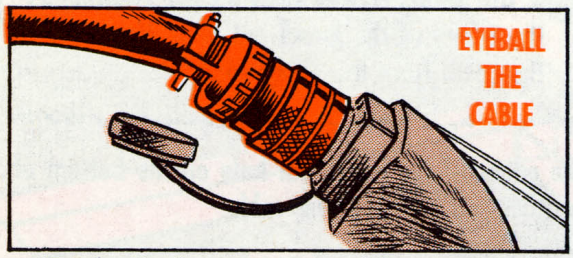


PS END

XENON ZAPPERS



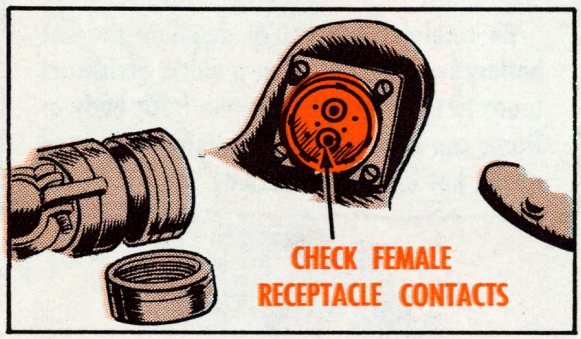
Just before you push the panic button to call the repairman on your AN/VSS-1, tank-mounted Xenon searchlight, try this:



Eyeball the power cable connection on the tank turret. Be sure the male plug is uptight with the female receptacle.

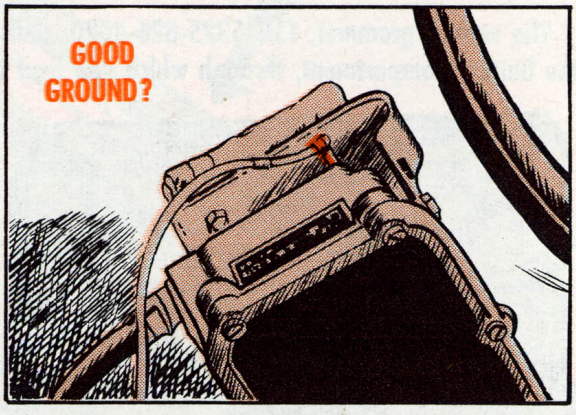
If there are more'n a coupla' threads bare on the connector coupling, chances are you've got poor contact.

Now, check the connector on the back of the searchlight itself. That coupling, too, should be snugged tight. It takes more time and patience than the turret coupling.



'Nother possibility: The contacts of the female receptacle might be recessed too far, in which case you will have to get the repairman. If they're pushed in more than an eighth of an inch from the lip of the insulator, the male plug can't make good contact.

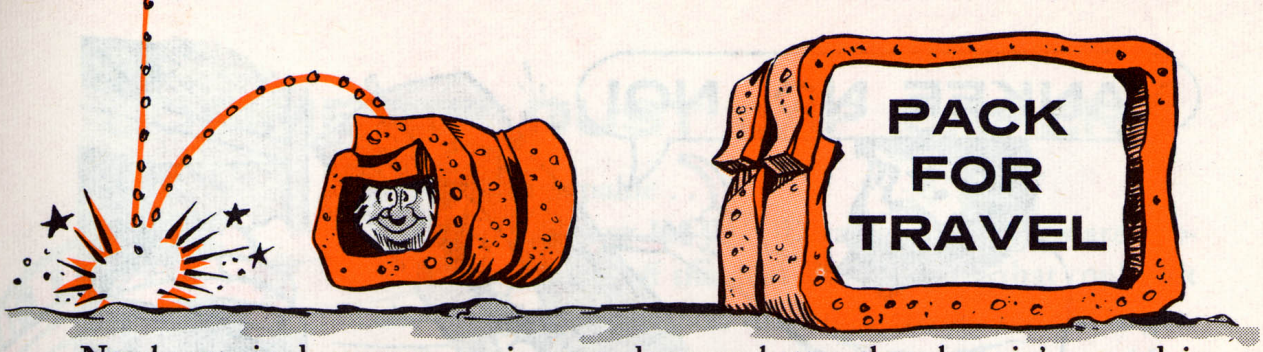
Another common Xenon Zapper to look for is a poor ground at the control box . . . inside the tank turret. The



searchlight won't operate without a good ground. Which means . . . scrape all the paint from the control box bracket where it contacts the ground lead. And, get bare metal where the bracket attaches to the turret, too.

When you do get your Xenon zerching for a target, heed that TM warning on operating in overdrive mode no longer than 15 seconds in any five-minute period. You'll prevent damage.

First chance you get refresh your memory on the other cautions spelled out in Change 1 (Jul 68) to TM 11-6230-219-12.

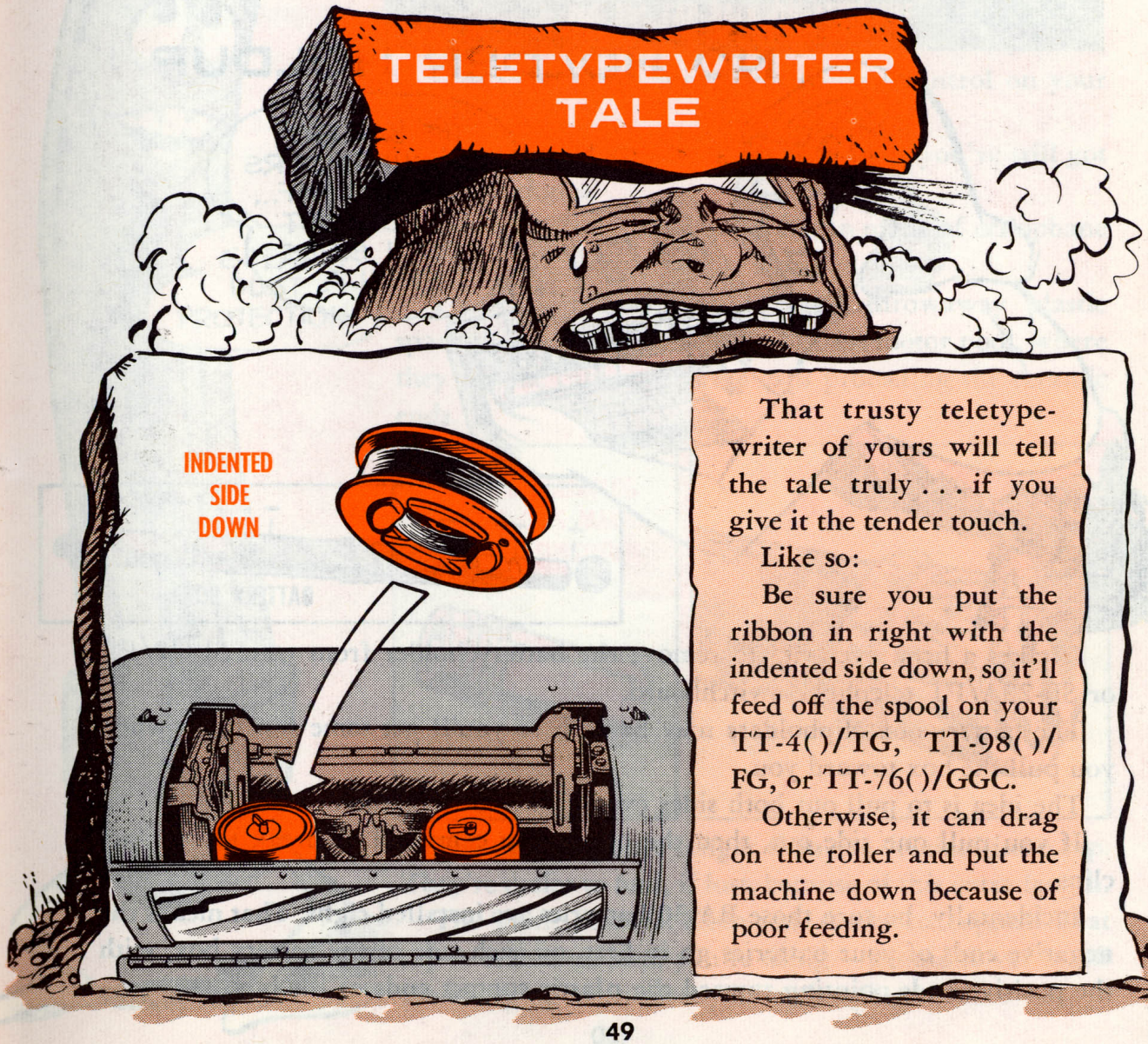


Newly-repaired commo equipment deserves better than bangin' around in the back of a truck on the return from the shop.

So-o-o-o-o, put the repaired equipment in a box . . . and pack polystyrene foam "worms" around it. That way, it won't be ready for another repair job at the end of the ride.

The packing seats itself better with every bump, jolt and jiggle of your vehicle to give you a continually improving cushion.

This material under FSN 8135-935-0983, is available in GSA Catalog page 157 (Oct 68).

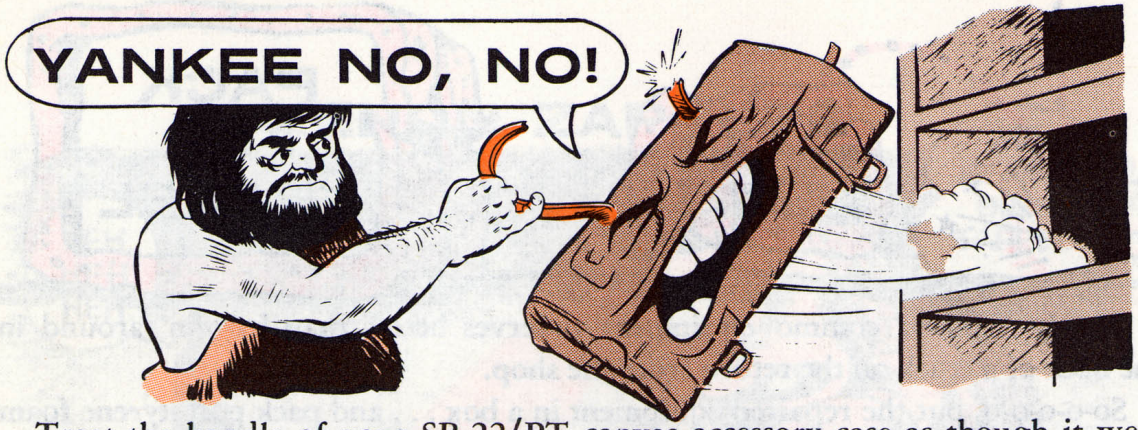


That trusty teletypewriter of yours will tell the tale truly . . . if you give it the tender touch.

Like so:

Be sure you put the ribbon in right with the indented side down, so it'll feed off the spool on your TT-4( )/TG, TT-98( )/FG, or TT-76( )/GGC.

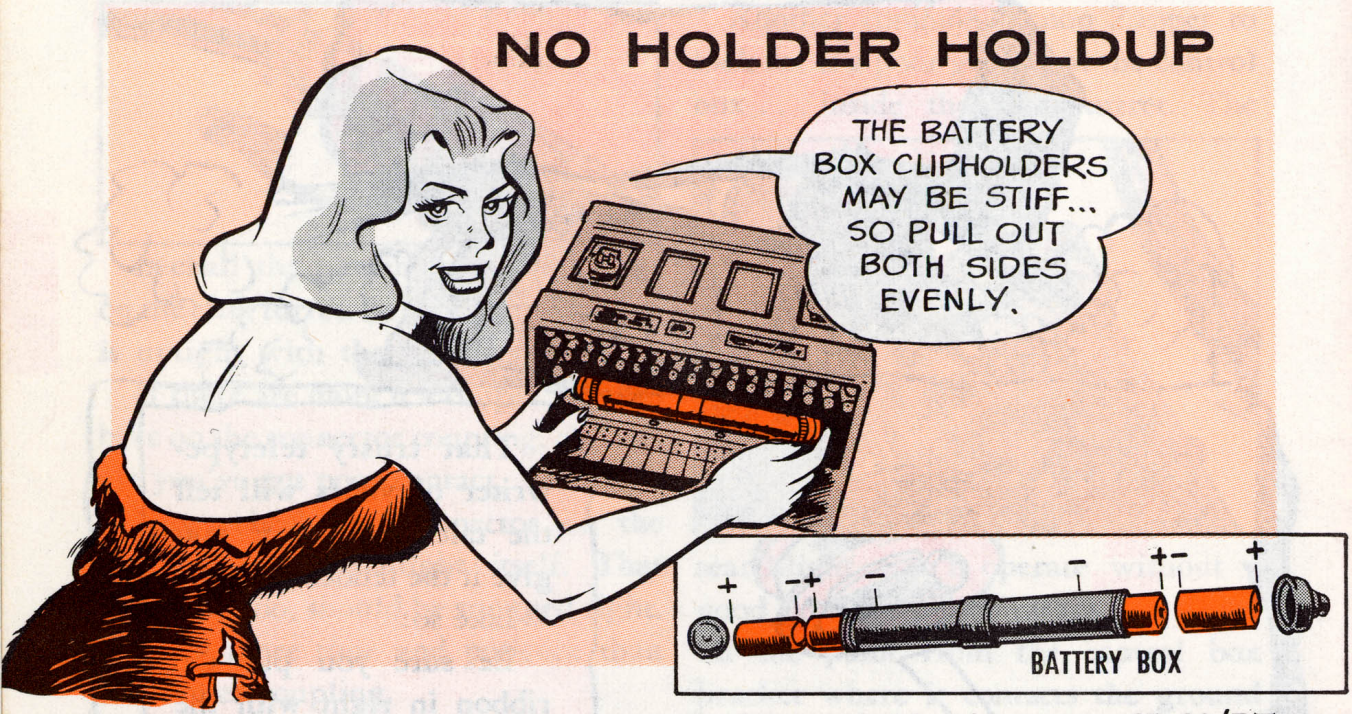
Otherwise, it can drag on the roller and put the machine down because of poor feeding.



Treat the handle of your SB-22/PT canvas accessory case as though it were attached to an overnight bag bound for all kinds of goodies . . . and it'll take the weight of switchboard parts for a long time.

You wouldn't believe it, but some jokers yank the handle clear off the case with rough handling.

Would you treat your own overnight bag like that?



It takes a firm, even tug to remove the battery holder from your SB-22/PT or SB-22A/PT telephone switchboard.

The battery-box clipholders may be stiff, so you'll get some resistance when you pull the box toward you.

The idea is to pull out both sides evenly . . . and together.

If you pull one side out, then the other, you can bend or break the contact clips.

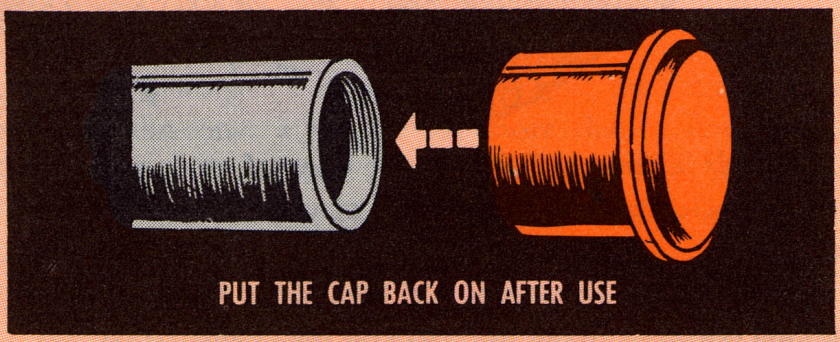
Incidentally, be sure those BA-30 batteries are installed right. That means the negative ends of your batteries go in first, on each side of the battery box, with the positive ends pointing toward the plastic contact ends of the box.

DOSIMETER DUST CAP CAPER

Caps are capable . . .

Yessir, on your IM-93/UD radiacmeter, caps are capable of blocking off the dust and moisture that could hit the charging socket and drift into the detector charger.

So-o-o-o, stick with your issue cap. Hang on with a bear-trap grip.



That's the prime ingredient of dust control on your IM-93.

If you should lose the plastic issue cap, you've still got a coupla angles.

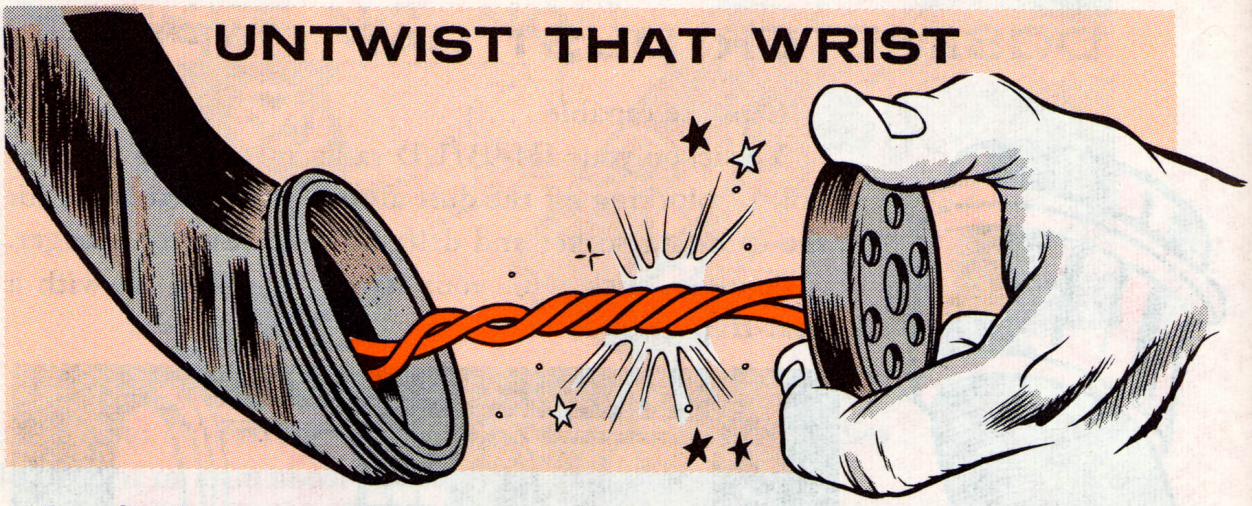
You can slip on a home-made cap made of cellophane and anchor it with a rubber band.

You can probably cadge some throwaway plastic sparkplug cable caps from the nearest motor pool, where they get the cables with the caps protecting the ceramic ends.

The cable caps are longer than the original issue cap. They're easier to find, if lost, because of this extra length.

The whole point is: Keep your dosimeter capped. That cap — whatever kind you're using — should never be off the charging end unless you're charging.

UNTWIST THAT WRIST



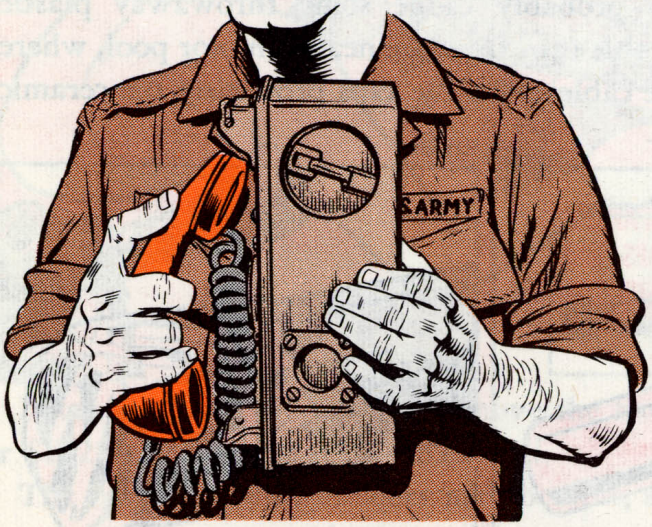
Bored? There are 7,967 better ways of curing the problem than twisting the receiver elements on the handset of your TA-43/PT and TA-312/PT telephone sets.

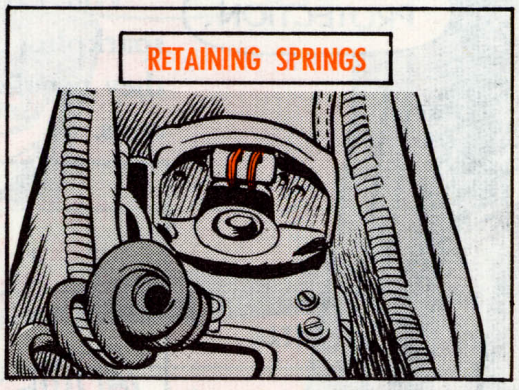
Why better? Because if you choose the handset, chances are great that you're gonna crimp or break the wires on the element.

Now, with those 7,967 other ways, that wouldn't happen.

It's also a good idea to make sure the wires are clear when you put back the receiver cap.

And, uh, snatching is great in some cases, but not when you're removing the handset from its cradle. You bust up the retaining springs. Push toward the springs before you lift the handset up. Same goes when you put it back.



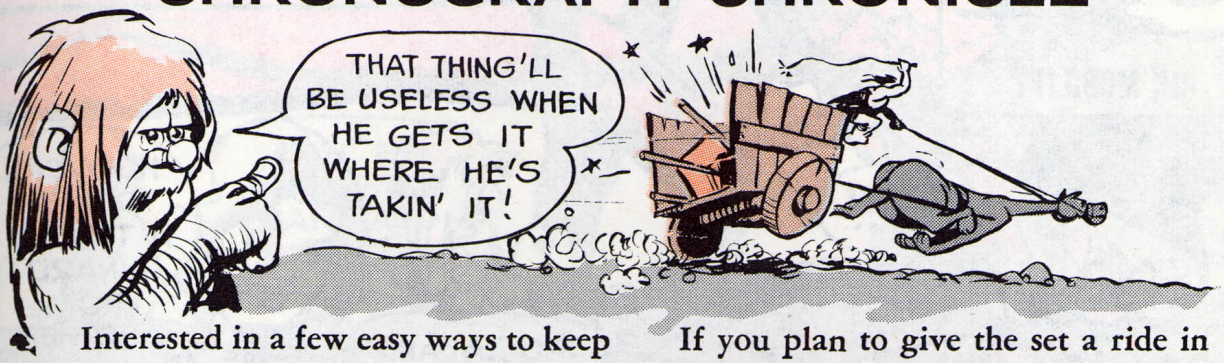


NO SNATCHING. PUSH TOWARD THE SPRINGS, THEN LIFT UP

COVERED UP?

Say, if those covers for your AN/VRC-12 and AN/PRC-25 series radio sets are giving you trouble by the overheat route, or if you can't squeeze 'em over your VRC-12 series components because of the modified handles on the components, forget 'em. Pages 28-29 of TB 750-911-2 (Jan 69) say the covers are unnecessary and are being removed from the supply system.

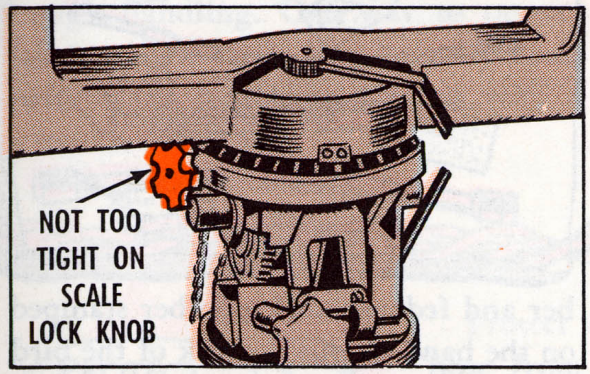
CHRONOGRAPH CHRONICLE



Interested in a few easy ways to keep your M36 radar chronograph's aim control score up to par?

Read on:

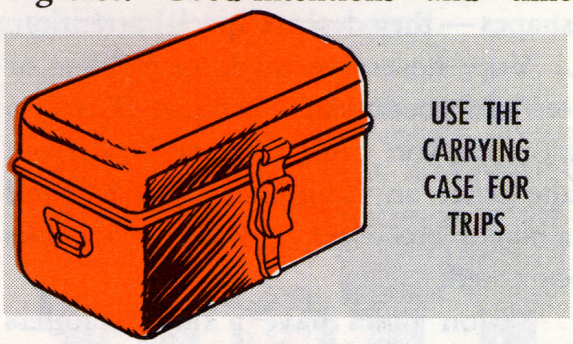
Light pressure is enough to secure the azimuth deflection scale lock knob. Over-tightening makes the scale ride high on its rail.



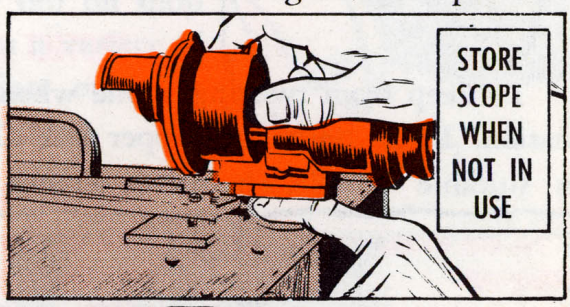
This over-ride, naturally, allows the scale to slip while changing deflections . . . and you lose a few rounds. Which is a waste of time, money and effort. So, easy does it.

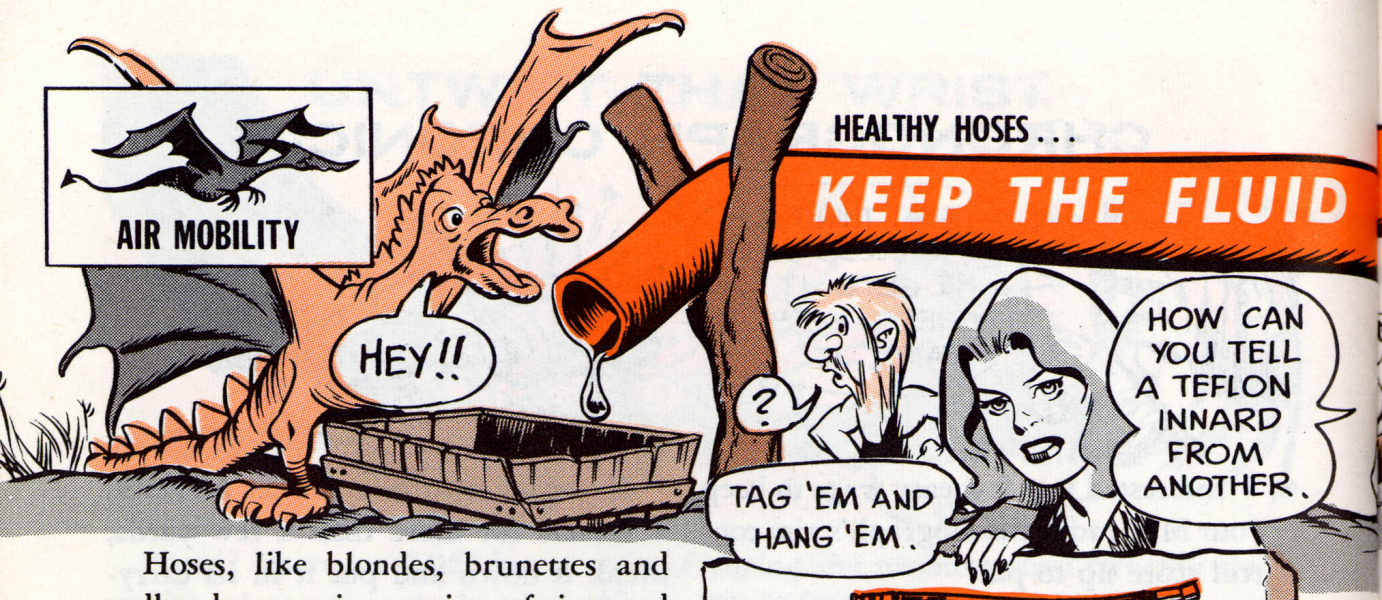
Kid glove care is the byword when handling the microphone cable. Connect and disconnect it **by the connector**. Yanking or twisting the cable to turn it loose can put it out of business.

If you plan to give the set a ride in a vehicle for more than a few yards, break it down and put it in its carrying case. "Good intentions" and "time saved?" don't prevent damage. The carrying case does.



Finally, remove and store the telescope (XM128) when you're not using it. This helps prevent a buildup of condensation from humidity, heat or temperature change. Like you know, condensation damages the 'scope.





Hoses, like blondes, brunettes and redheads, come in a variety of sizes and shapes — they deserve special attention.

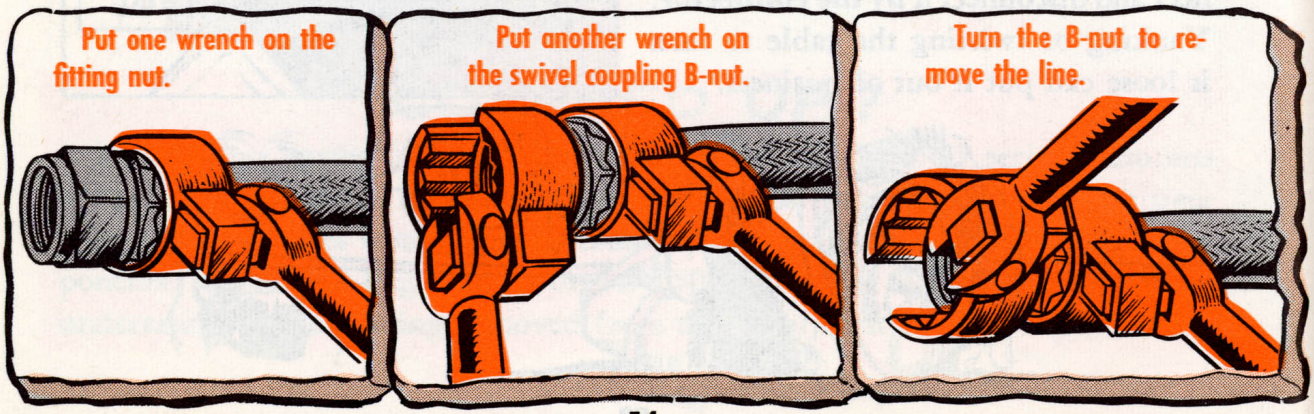
Yup, hoses are made of rubber or tetrafluoroethylene (teflon). From a distance you can't tell one type from the other any more than you can tell a book by its cover . . . little black books excepted.

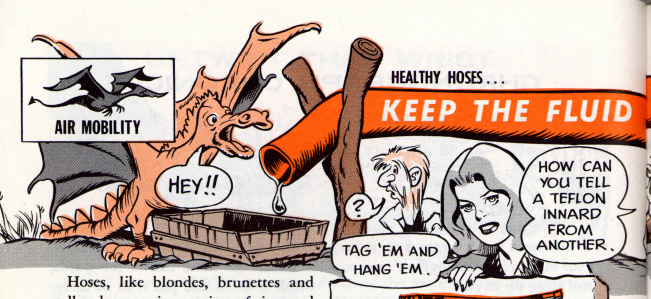
Teflon hoses have a shiny, stainless steel braided cover. And now a new rubber hose with the same cover has made the scene. Rubber hose, MIL-H-58085, has an unlimited shelf life and is a condition replacement item.

To tell which hose goes where focus on the metal identification band that's on every hose. You'll find the part number and federal stock number stamped on the band. A quick check of the bird parts pub will clue you whether the hose is used in the fuel, oil or hydraulic system.

PROTECT REMOVED LINES

To keep from twisting a line when you take one off, use a two-wrench combination. Latch onto the proper size 12-pt open end crowfoot socket wrench and a suitable handle. The socket wrench won't round-off the hose B-nut or fitting.





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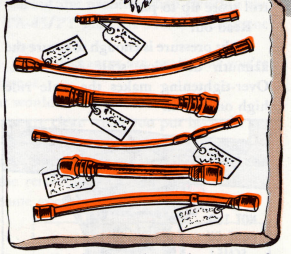

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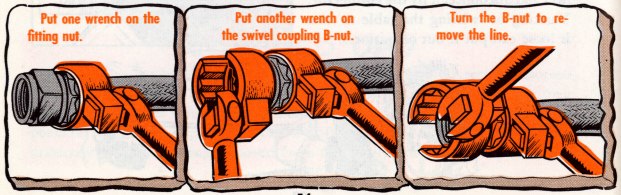
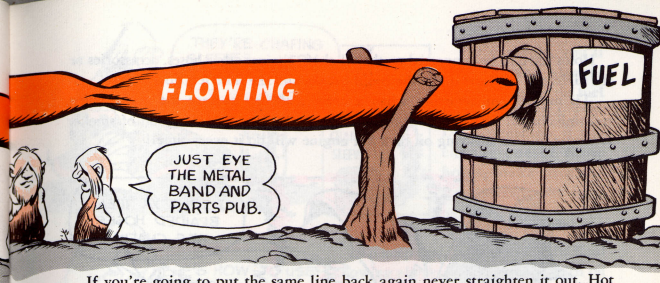
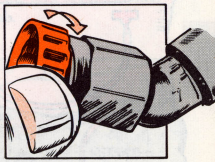




If you're going to put the same line back again never straighten it out. Hot fluids tend to form the hose while others are preformed during manufacture. Changing the contour will kink the hose which calls for replacement.

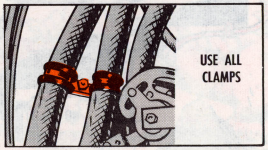
Never place hoses on the floor where they can be stepped on and ruined. Sure, hoses are tough but they can't take rough handling. One way to protect used or new hoses is to identify them with a tag and hang 'em up with a piece of safety wire.

Protect each end of a hose from dirt by using dust plugs, caps or heavy aluminum foil. TM 55-405-7 (Aug 66) on shop practices lists a variety of protectors just made to plug those babies.

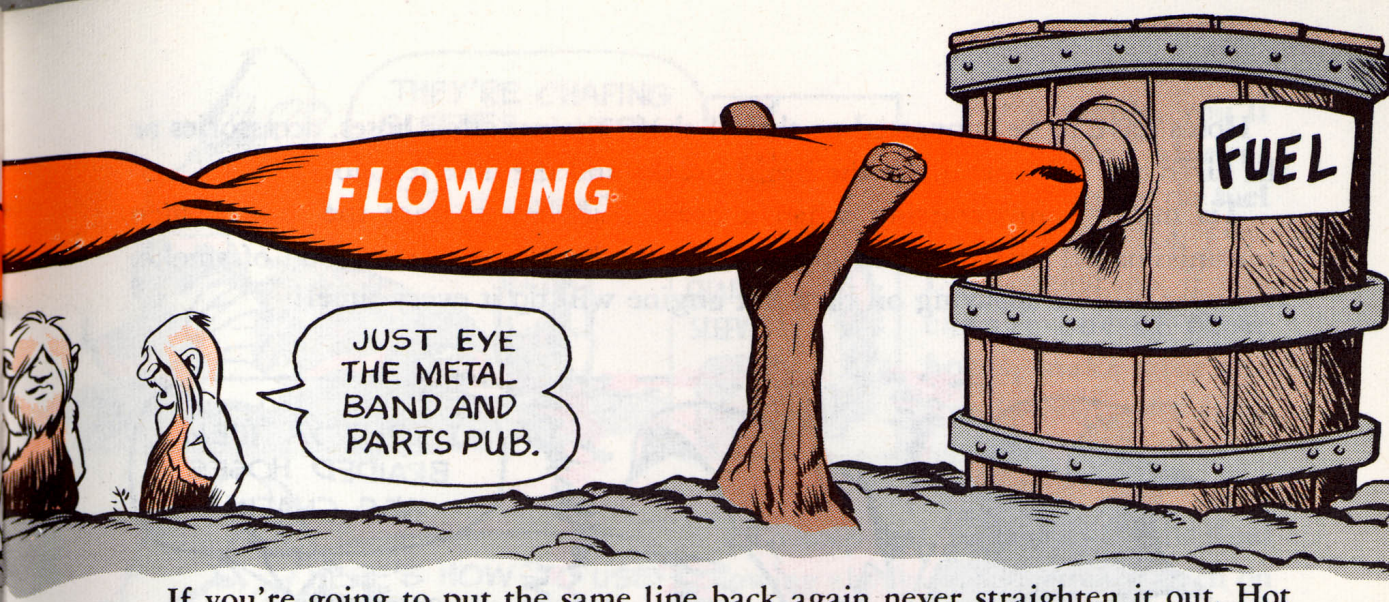


PUT 'EM ON CAREFULLY

When you put a line on your bird be sure you use all the standoff clamps and separation clamps for that particular line. The parts pub will clue you on the clamp part numbers, location and how many of those little jewels to use.



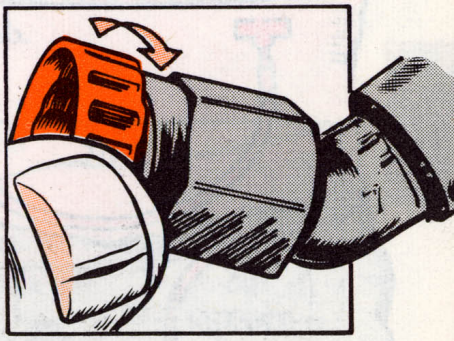
P&S MORE



If you're going to put the same line back again never straighten it out. Hot fluids tend to form the hose while others are preformed during manufacture. Changing the contour will kink the hose which calls for replacement.

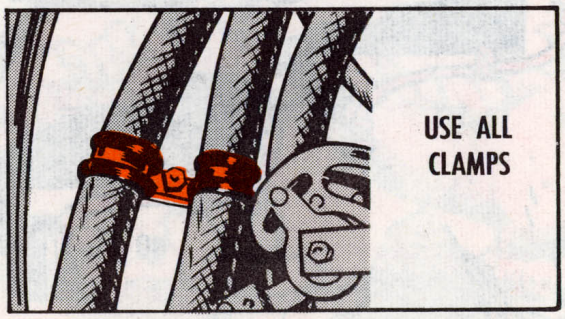
Never place hoses on the floor where they can be stepped on and ruined. Sure, hoses are tough but they can't take rough handling. One way to protect used or new hoses is to identify them with a tag and hang 'em up with a piece of safety wire.

Protect each end of a hose from dirt by using dust plugs, caps or heavy aluminum foil. TM 55-405-7 (Aug 66) on shop practices lists a variety of protectors just made to plug those babies.



PUT 'EM ON CAREFULLY

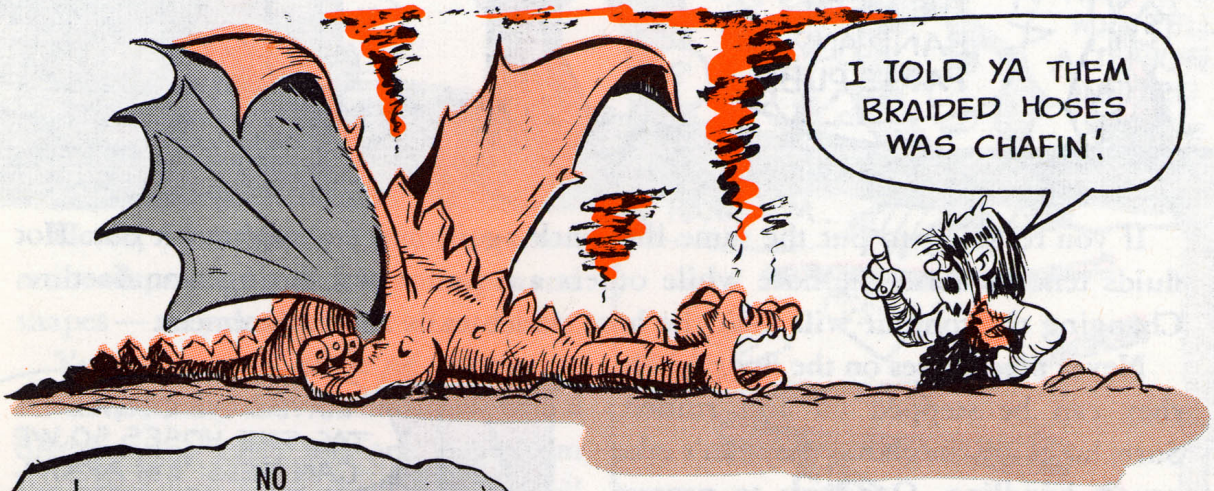
When you put a line on your bird be sure you use all the standoff clamps and separation clamps for that particular line. The parts pub will clue you on the clamp part numbers, location and how many of those little jewels to use.

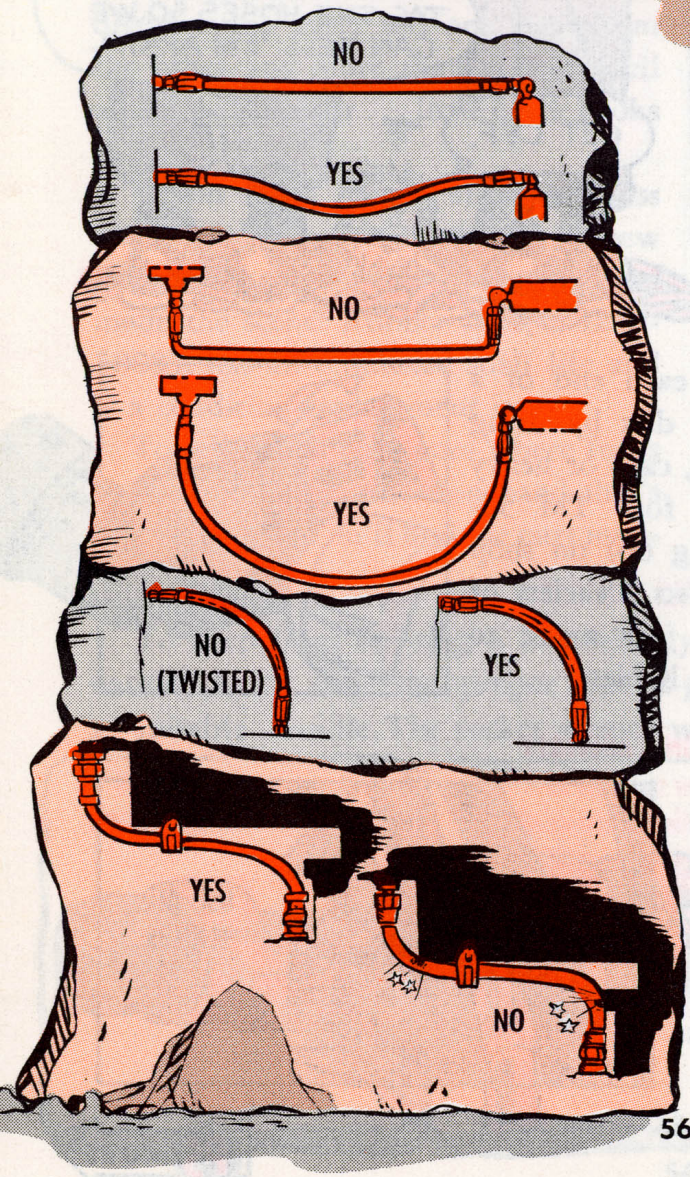


P.S MORE

Hoses have to be supported or they'll chafe against other hoses, accessories or the airframe. In short order the braid breaks and the hose lets go.

'Tis mighty embarrassing when a crew chief has to face the music when transmission oil pressure drops to zero and the bird settles in a cloud of smoke. A blown oil line spraying oil on a hot engine will do it every time!!





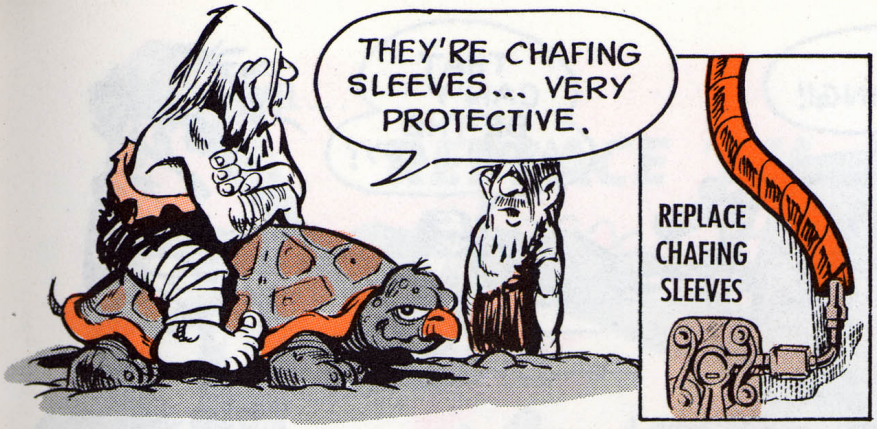
Hoses need some slack between clamps for the normal expansion and contraction you get when the line is pressurized. Slack is needed to keep a bend radius as large as possible to prevent kinks. Also, the hose should not be twisted.

If all the clamps are in place and you still have a chafing problem maybe you don't have the right hose length. A hose that's too short or too long won't hack it!

Eye the parts pub for the right part number of the hose. If supply is fresh out, run the shot hose over to support and they'll make one just like it if it's the kind that can be made in the field.

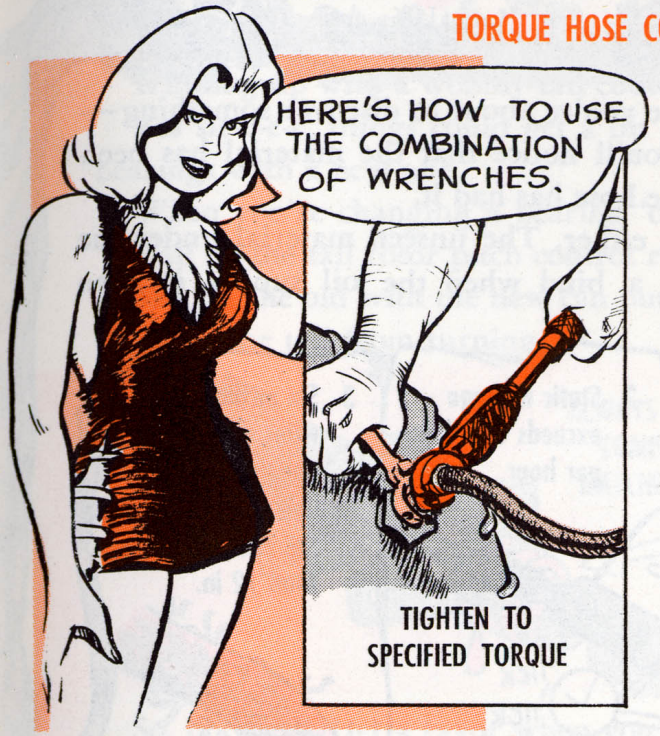
Make sure your hose routing is right. Use an extra support clamp, of the proper size, to cure a chafing problem.

As tough as hose material is, you still may find teflon spiral wrap around some hoses for added protection against chafing.



For example, you'll find chafing sleeves wrapped around the fuel lines of a Chinook T55-L-7C engine. So, if you change one of those hoses, make sure the spiral wrap goes back again.

TORQUE HOSE CONNECTIONS



To keep fuel, oil and hydraulic fluid flowing always use a torque wrench on the swivel coupling B-nuts. Those slim jobs go thru a lot of vibrating, twisting and turning.

A B-nut that's too tight can distort the connection and give you a leak. A loose nut is guaranteed to give you that drip! drip! drip!

Hold the fitting with a crowfoot socket and handle in one hand and a crowfoot socket and torque wrench in the other hand.

Tighten the B-nuts to the torque values given in the bird organizational maintenance pub.

MAKE THE FEEL TEST

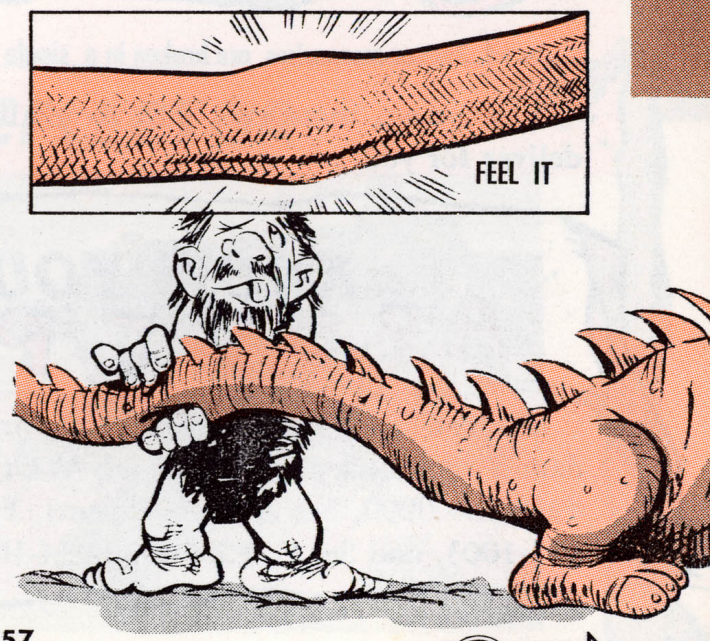
When you eye those slim jobs move your peepers like you were on a 48-hr pass.

Maybe you can spot a damaged hose? Maybe you can't?

So, if you suspect a hose is faulty go one step further by feeling the wire braid for kinks, broken wire and bulging.

Say you spot a hose that has a bulge in it, which means it's been twisted. You probably won't find a broken strand in it.

But the inside has been damaged.



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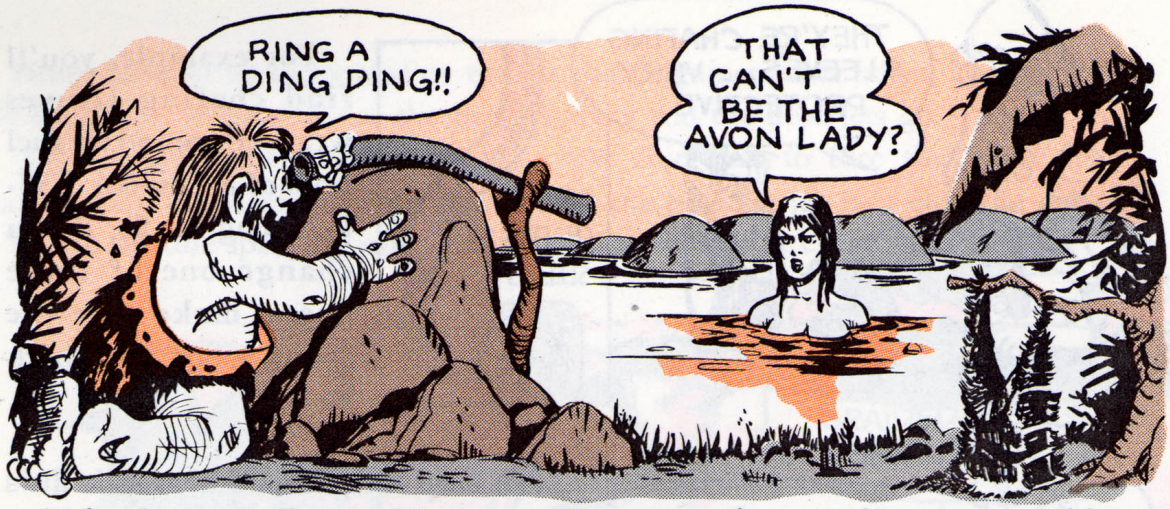
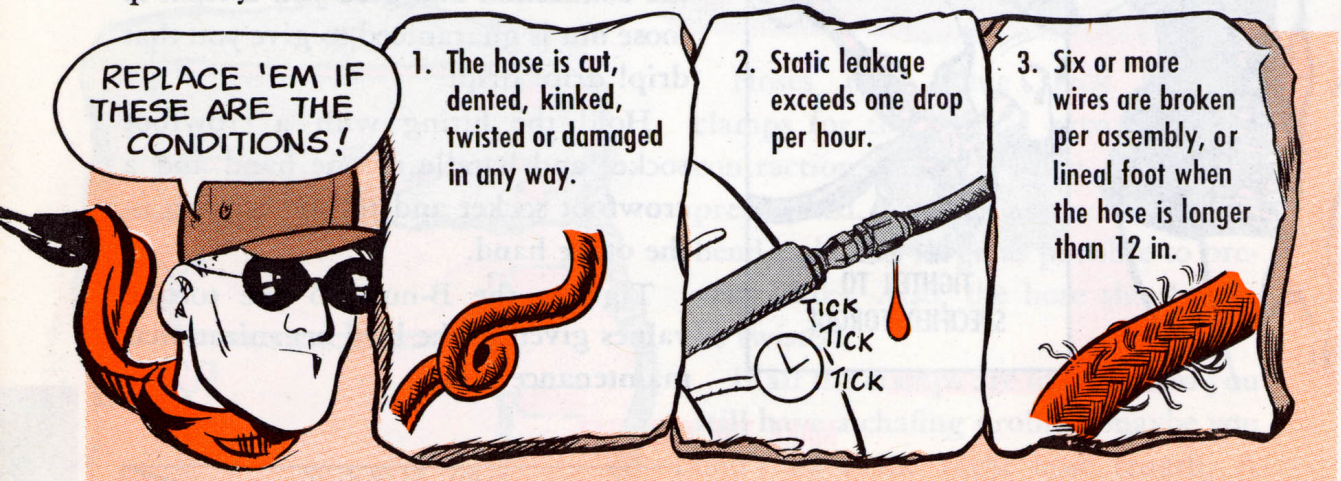


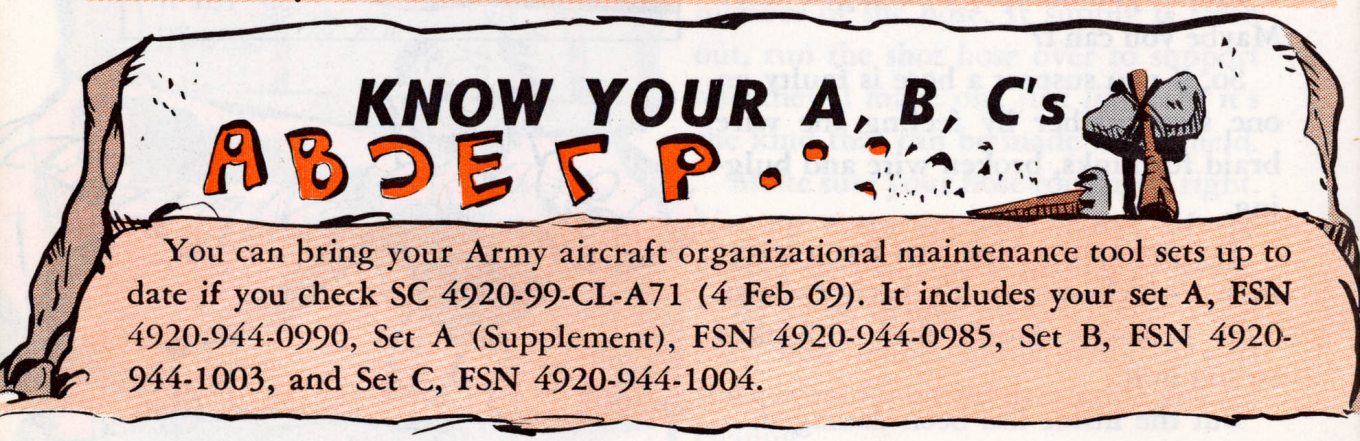
Take the hose off and look thru it like you're about to discover something—like a shorter mini skirt—you are!! You'll notice that the material has been twisted, restricting the fluid flow . . . the hose has had it.

Never let a crease in a hose fool you, either. The unseen material under the wire braid is kinked. Your bird's in a bind when the oil supply is even partially choked off.



4. Two or more wires are broken in a single plait.

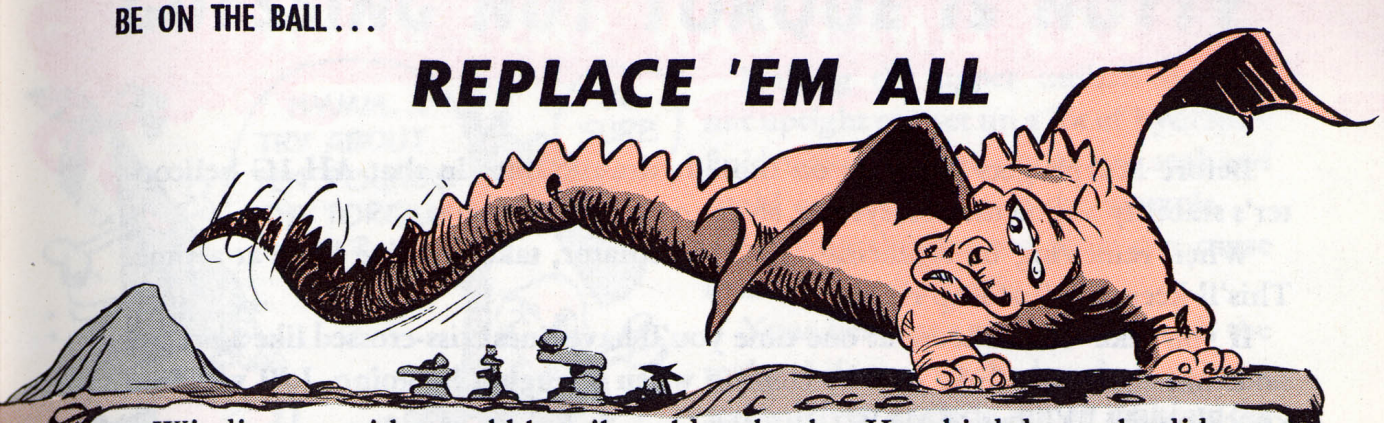
Yessir-e-e-e, those slim jobs are really built. Never mistreat 'em and they'll deliver for you.



You can bring your Army aircraft organizational maintenance tool sets up to date if you check SC 4920-99-CL-A71 (4 Feb 69). It includes your set A, FSN 4920-944-0990, Set A (Supplement), FSN 4920-944-0985, Set B, FSN 4920-944-1003, and Set C, FSN 4920-944-1004.

BE ON THE BALL . . .

REPLACE 'EM ALL

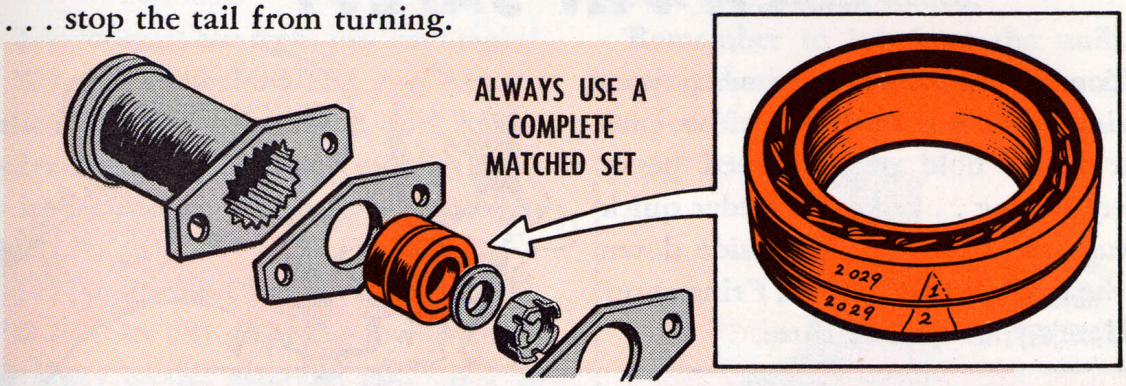


Winding up with a wobbly tail could make that Hueybird dance the didos.

Yes sir-e-e-e, things could get a bit rocky if you got to mixing old crosshead bearings with a new one.

When you're changing a bearing 'cause it's bad, go all the way and replace 'em all on the tail rotor pitch control rod with a complete bearing set.

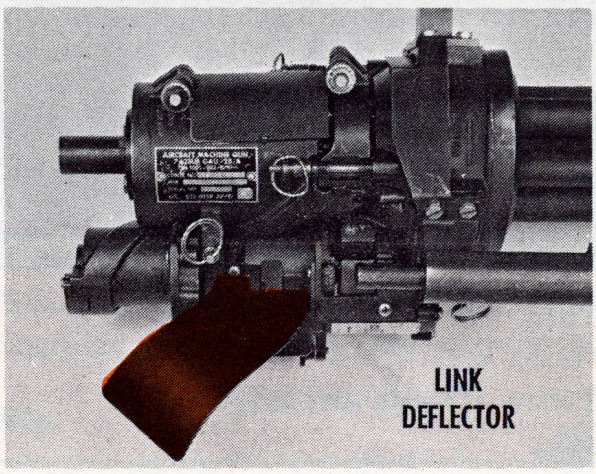
Mixing the old with the new can put a strain on the control rod or even worse . . . stop the tail from turning.



So, do that UH-1 a favor when you're making the bearing change by making them all new. This'll keep you in good with the bird as well as para 10-38a in TM 55-1500-322-25 (Aug 68).

LINK DEFLECTOR

No excuse now for spent links from the M134 gun ruining Huey's tail rotor on your M21 subsystem. MWO 9-1090-202-20/1 (3 Feb 69) provides a link deflector (FSN 1005-042-5188, P/N 11691071) and the installation dope. The deflector goes on the delinking feeder of the left gun only. So hop to it, you 45J's.



SAS LINES CAN SASS BACK

Before Murph gets his mitts on those hydraulic lines in that AH-1G helicopter's stability augmentation system, shift an eyeball this way.

When removing or replacing the SAS actuator, take one line loose at a time. This'll keep 'em lined up right.

If you take 'em all loose at one time you'll have lines criss-crossed like a pretzel and that hydraulic fluid will be coming when it oughta be going. It'll wind up knocking the "Y" out of YAW.

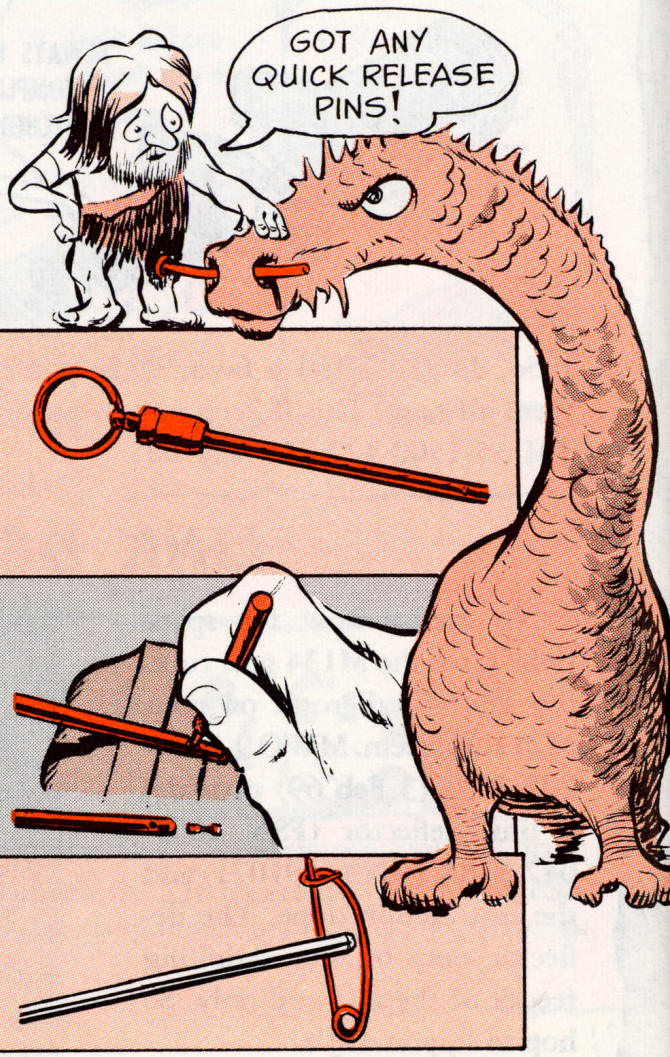
A good idea would be to make up a stencil reading: CAUTION: DO NOT CROSS LINES.

Then, put the stencil on the forward side of the bulkhead at FS 186.25.

LOCK PIN SAFETY

You 45J gunship armament types having trouble with quick release pins that won't hold or that need pesky safety wiring . . . like the feeder quick release pin that's put in upside down on the XM27E1 subsystem, f'rinstance?

Here's your quickie cure:



Get hold of a supply of these brand-new lock pins (FSN 5315-223-6113, P/N AN 416-1) from your supply guys. Your subsystem's TM authorizes 'em.

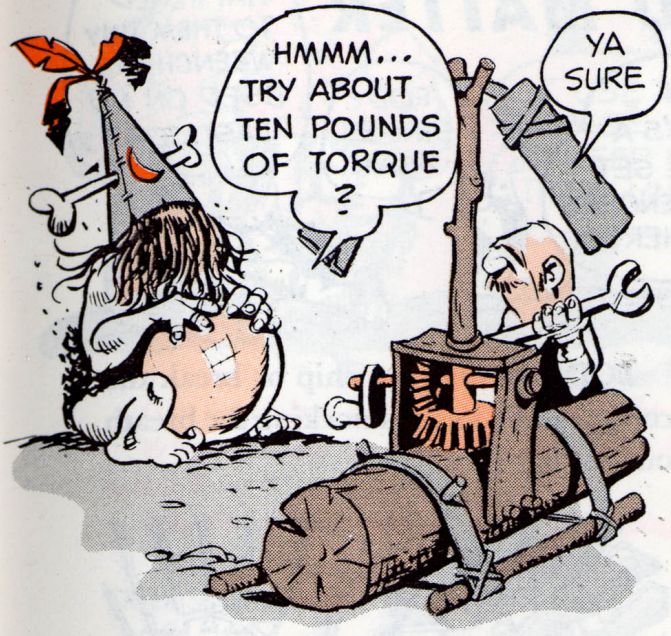
Stick the release pin on a vise with the jaws 1/4-inch apart.

Push the plunger forward and, with a 1/16-inch punch (FSN 5120-240-6082), knock out the plunger balls and shear the shaft at its second detent.

Then, shove a safety lock pin thru the holes.

Presto, it's safe and safetied!

GUESSING NUT TORQUE IS NUTTY



Too loose or too tight just isn't right!

When it comes to UH-1 and AH-1G helicopters the adjustment nuts in the hydraulic servo cylinder mounts have to be torqued to the tune of the right touch.

Para 6-45c in Ch 1 to TM 55-1520-210-20 (Oct 68) gives the lowdown on all Huey model aircraft, and Ch 1 to TM 55-1520-221-20 (Nov 67) covers the HueyCobra.

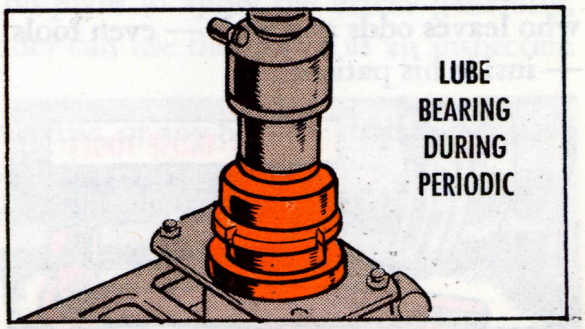
Making the upper uniball bearing nut uptight can set up a lot of hydraulic fluid leaking at the upper cap seal and could cause binding in the controls.

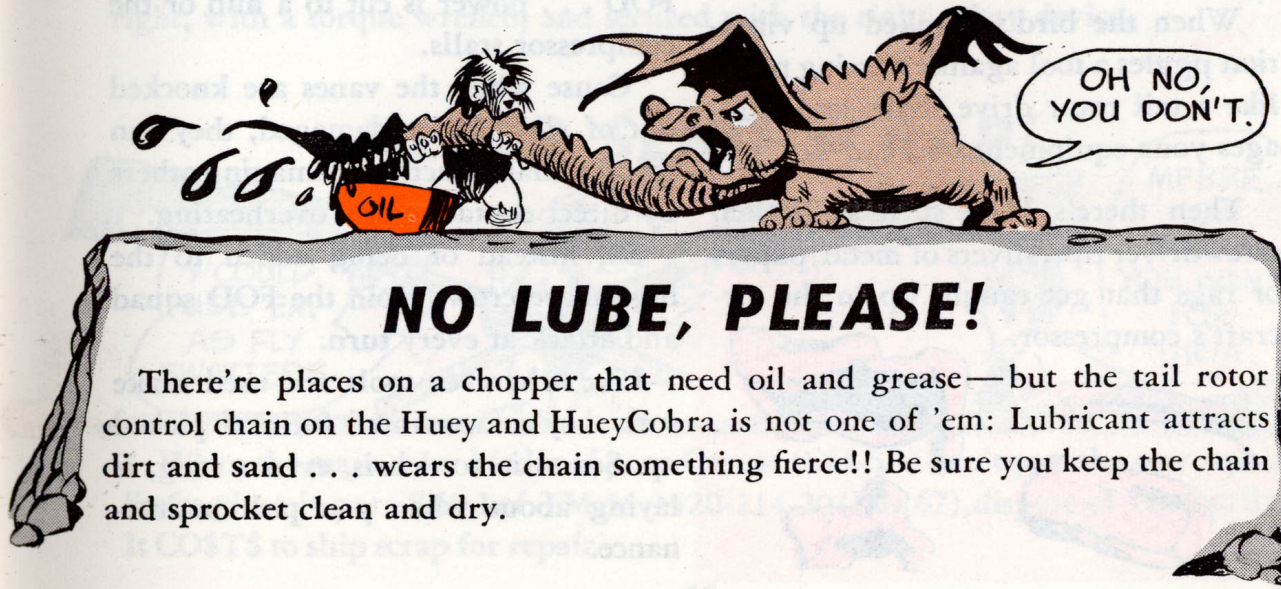
Leaving the nut too loose can cause feedback in the cyclic stick.

Your best bet's to leave off with the make-shift tool method such as using a screwdriver or drift pin in making the adjustment.

Stick with the 1-1/4 to 3-in circle diameter adjustable spanner wrench (FSN 5120-277-9075) and the 0-4-lb indicated scale (FSN 6670-618-5662) to get the 1-lb torque needed.

Remember to lubricate the uniball bearing during the periodic inspection like it tells you in the TM.



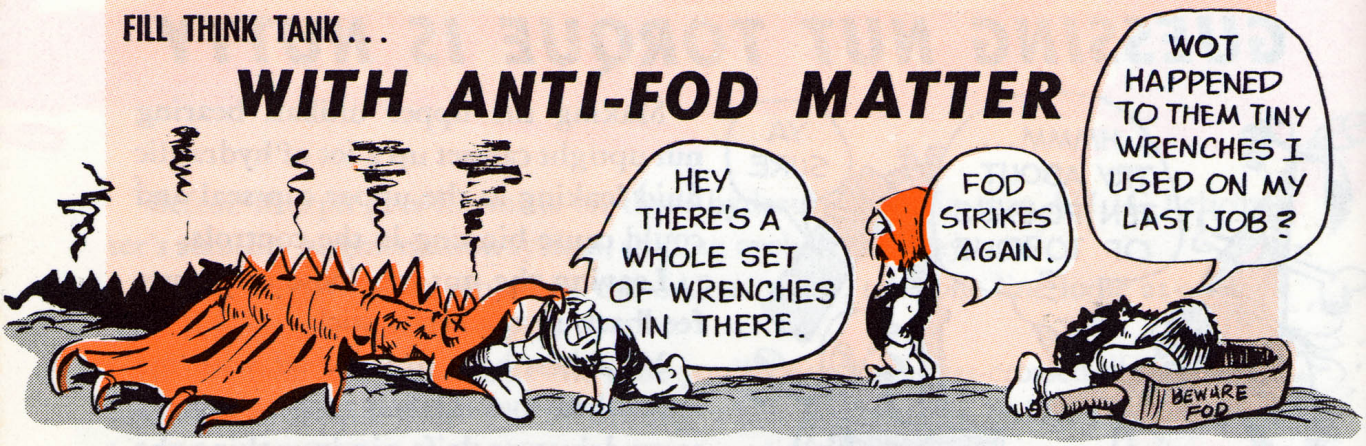


NO LUBE, PLEASE!

There're places on a chopper that need oil and grease—but the tail rotor control chain on the Huey and HueyCobra is not one of 'em: Lubricant attracts dirt and sand . . . wears the chain something fierce!! Be sure you keep the chain and sprocket clean and dry.

FILL THINK TANK . . .

WITH ANTI-FOD MATTER

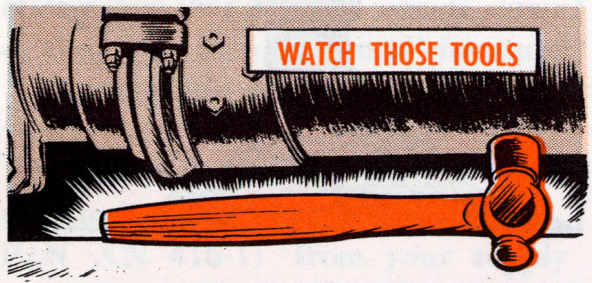


Foreign object damage keeps lurking in every nook and cranny when it comes to aircraft.

Take, f'rinstance, the UH-1 or AH-1G helicopter.

Sure, a screen has come along to protect the separator to keep out nuts, bolts, cotter pins, safety wire and other such items.

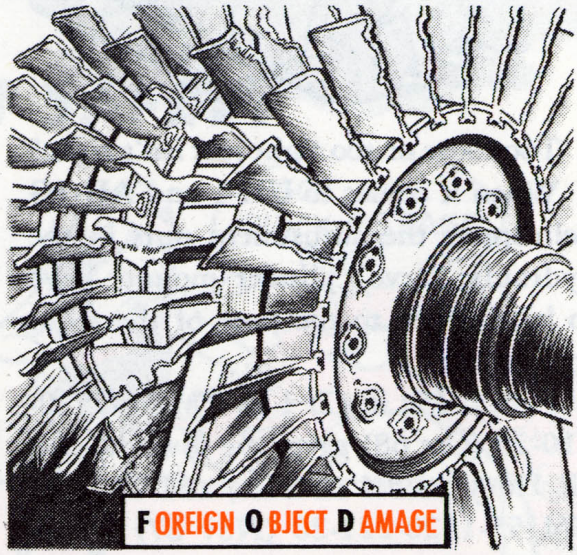
But, there's the doctor-like mechanic who leaves odds and ends — even tools — inside his patient.



When the bird's cranked up vibration jiggles a tool against moving parts, like a tail rotor drive shaft, and damages your equipment.

Then there's FOD such as broken screwdriver tips, slivers of metal, papers or rags that get caught up in the aircraft's compressor.

FOD like that can chip or break the compressor's vanes, knocking the breath out of that bird.



And . . . depending on the extent of FOD . . . power is cut to a nub or the compressor stalls.

'Cause when the vanes are knocked out of rinktum or damaged, they can set off a chain reaction, damaging others by direct contact or by overheating.

So, instead of being added to the nightmare crowd, join the FOD squad and attack at every turn.

Like wherever tools are used make sure they're accounted for and picked up. See to it no debris, even a twig, is laying about when you pull maintenance.

SPARE THE WAR PAINT

Dear Windy,

Our Loach has a lot of slippage marks painted on it.

When we put in new hardware should we continue to decorate it with slippage marks?

What's the low down on using slippage marks on all aircraft?

SP6 R. W. B.

Dear Specialist R. W. B.,

The slippage marks on your Loach were put there by the manufacturer as part of his quality control. Slippage marks for the field are called out in the maintenance pub for your OH-6A.

The Aviation Systems Command has no plans to apply the marks generally, to your bird. Of course a local commander can use the device as an inspection aid.

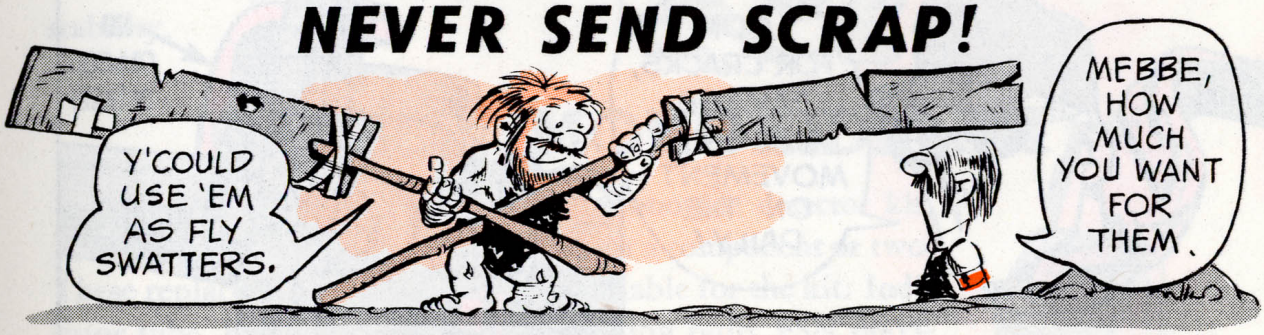
But splashing war paint all over your Cayuse, or any bird for that matter, may not be the answer. Slippage marks can drive you to distraction.

Maintenance and inspection types want hardware to stay put. To assure this, torque values have been set and lock wire, cotter pins plus other locking devices added as a safety factor.

Nuts and bolts will do the job they're supposed to do when they're tightened right, with a torque wrench, and secured with the right safety device.

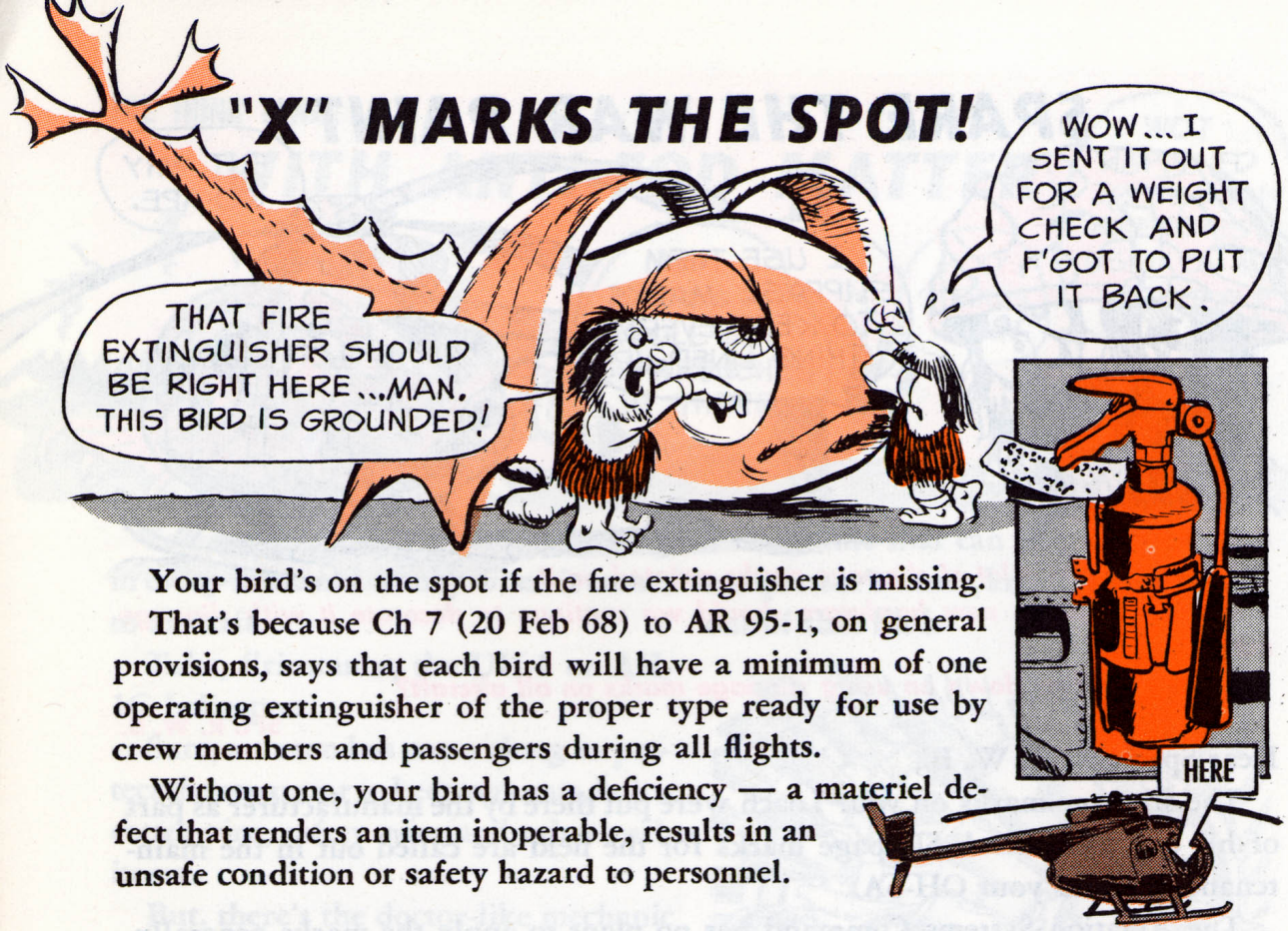
Windy

NEVER SEND SCRAP!



When the main rotor blades of your Cayuse (OH-6A) don't pass the new repair limits given in para 8-10.1 of TM 55-1520-214-20 (Dec 67), dispose of 'em locally. It COT to ship scrap for repair.

"X" MARKS THE SPOT!



Your bird's on the spot if the fire extinguisher is missing.

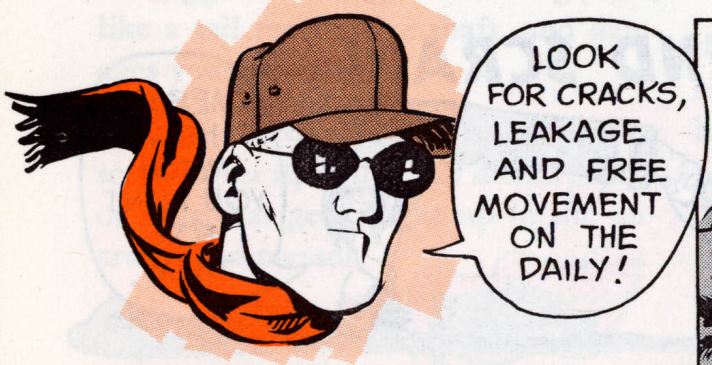
That's because Ch 7 (20 Feb 68) to AR 95-1, on general provisions, says that each bird will have a minimum of one operating extinguisher of the proper type ready for use by crew members and passengers during all flights.

Without one, your bird has a deficiency — a materiel defect that renders an item inoperable, results in an unsafe condition or safety hazard to personnel.

CRACKED YOKE NO JOKE!

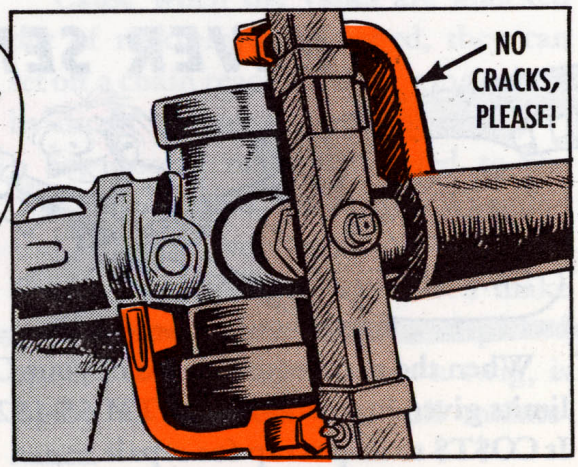
Look sharp, birdman!

That's the word in para 8-29 of TM 55-1520-206-20 (Oct 65) on inspecting the tail rotor hub and yoke on your Raven (OH-23).



When you pull the Intermediate and Periodic go one step further. Eye both sides of the yoke, especially in the internal radius area, with a 4-to-6 power magnifying glass. No cracks allowed.

A crack in the yoke can throw the tail rotor out of track and give you a high freq vibration . . . or worse.



NOT TOO HIGH...

20-TON CRANES DON'T FLY

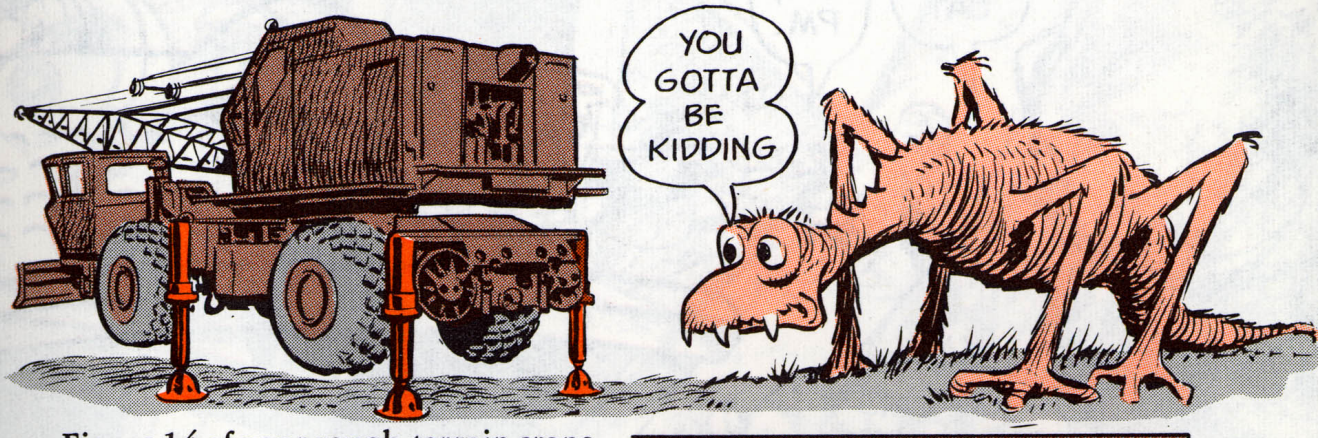
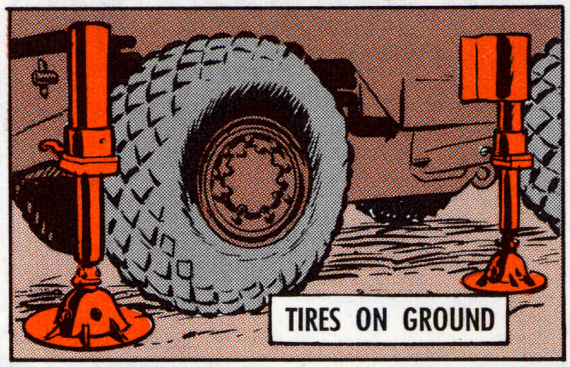


Figure 14 of your rough-terrain crane book, TM 5-3810-232-12 (Jul 66) got you a little up in the air?

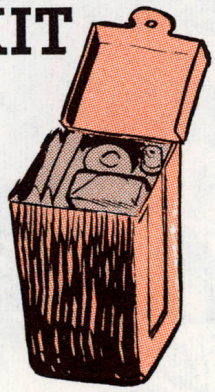
Come down for a soft landing — that picture was meant to show how the outriggers are placed on the ground, not to imply that you work with the wheels off the ground.

Eyeball para 18(d), page 30, of the TM and you'll find the word on proper outrigger positioning and operation.

You put those outriggers down just far enough to take the strain off the tires — just slightly slacken the sag. You need those big rubber doughnuts for stability.



CARBON MONOXIDE KIT



You needn't toss out your carbon monoxide detector kit, FSN 6665-618-1482, just 'cause it's short a component or two. These replacement components are available for the kit: Indicator tube, FSN 6665-276-7545. Sampling bulb, FSN 6665-725-0130. Seal breaker, FSN 6665-725-0131. The components will extend the life of your kit, and they're cheaper, natch, than ordering a new kit.

NO PUSSYFOOT PM HERE...

D7E WILD

NO PUSSYFOOT PM HERE...

D7E WILDCAT CARE

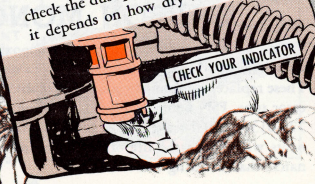
MAN, YOU KEEP A SLEEK CAT.

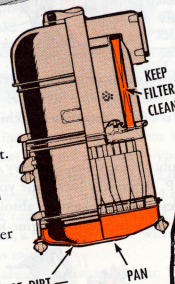
IT'S PM, BOY, PM.

US CATS GOT 9 LIVES— WITH THE RIGHT KINDA PM!

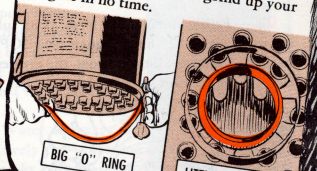
AIR—That's your pet's first life: clean air for that engine to breathe. Watch that red target on your air cleaner indicator and believe in it. Wiggle the indicator to be sure it works.

But before it shows that red stripe, check the dust pan—how often you do it depends on how dry and dirty it is where you're working. Then when the pan gets an inch or so of dirt—not more'n that—dump it. Don't wait or hesitate when it's time to clean the filter element off.



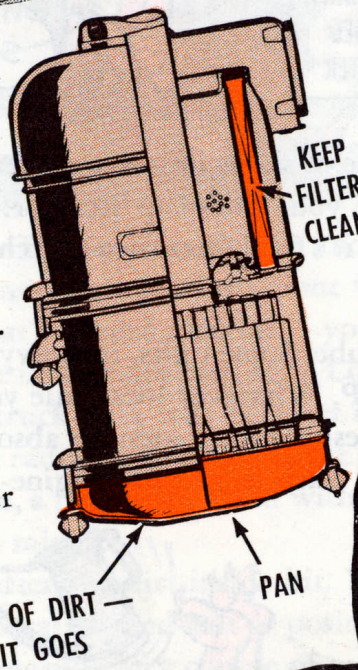


Then when you put the element back—watch it! The big outside O-ring set is easy to see. But you could lose the little inside one between the element body and the intake, which would let in unfiltered air that would grind up your engine in no time.



CAT CARE

where you're working. Then when the pan gets an inch or so of dirt—not more'n that—dump it. Don't wait or hesitate when it's time to clean the filter element off.



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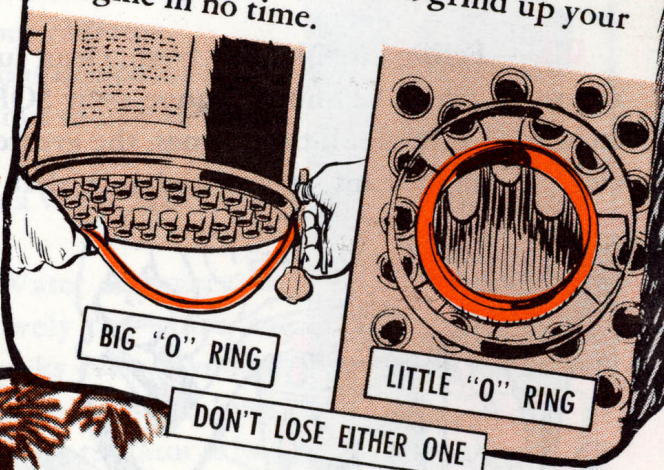
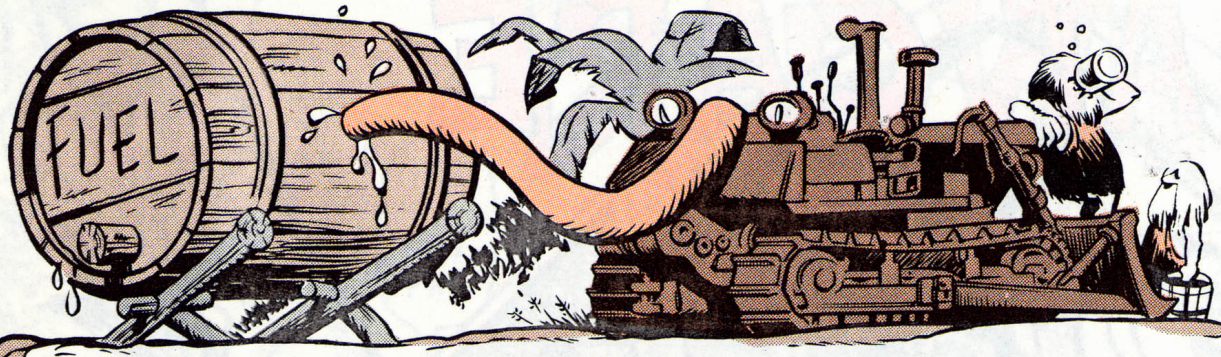
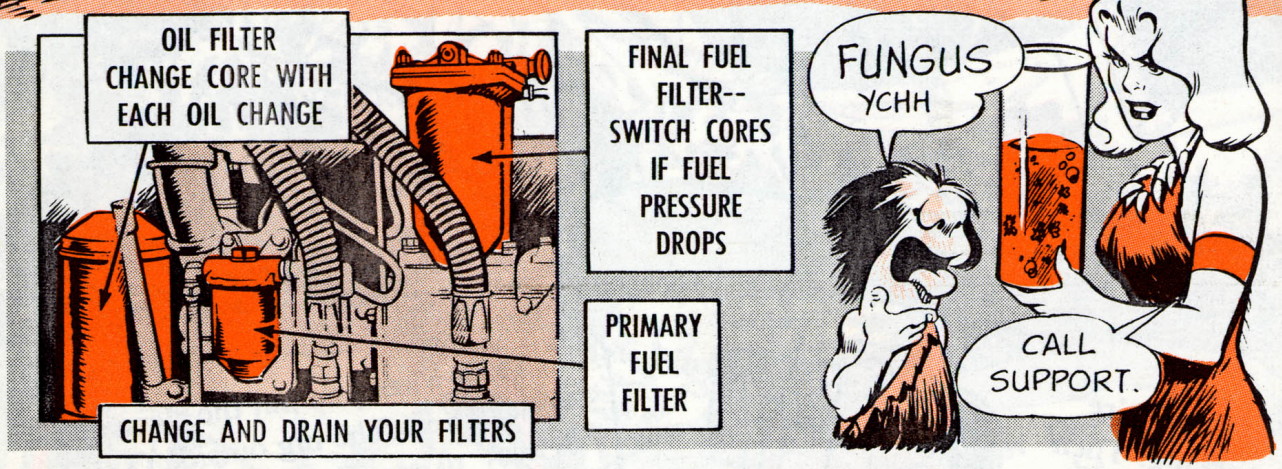


P.S MORE



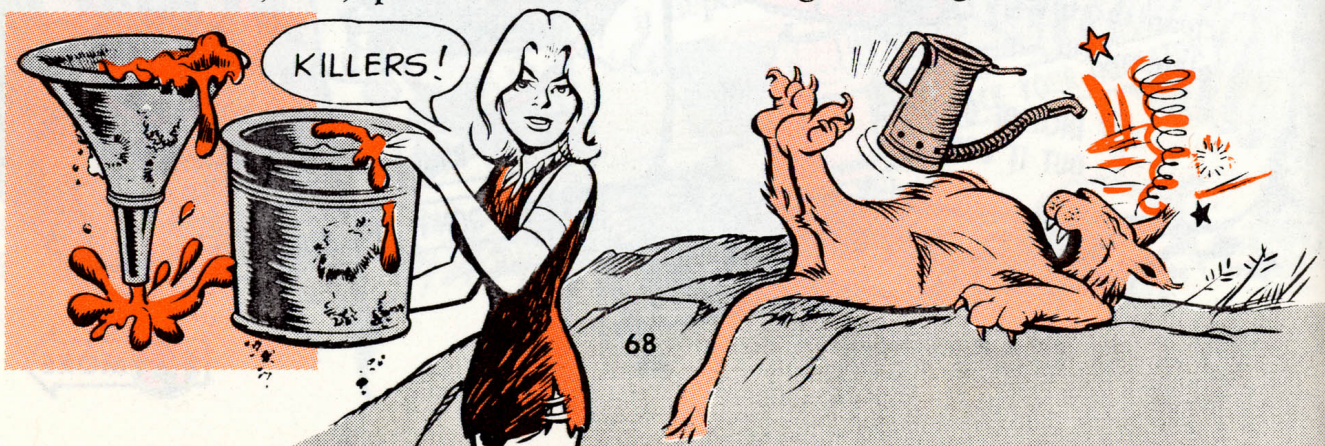
FUEL—Life No. 2 is the contamination-preventer system you have in your drain-strainer-filter system. Fuel loaded with dirt, water, or fungus plugs feed lines and cuts injector tops to pieces.

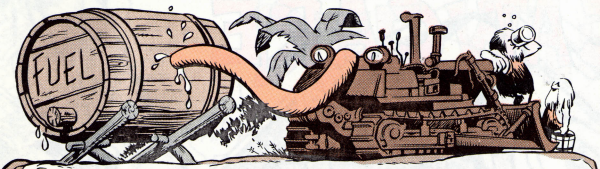
Draw off condensate water through the trap petcock every morning, and every few days catch some in a glass. If it looks green, have support check your tank for fungus.



Drain your primary filter every couple of shifts in wet weather. Wet or dry, a weekly cleanout can help—along with your tank-cap strainer. Then if fuel pressure drops on your gage, you'll know it's final filter core-switching time, fast.

OIL—Feline Life No. 3 is fresh, clean lube. Some units, in heavy dirt or blowing sand, make 125-hour change their SOP. Whatever local rule you have, stick to it. And when refill time comes, the greatest thing is utensils absolutely CMMI clean. Funnels, cans, spouts and such that wash in grit are engine-killers.





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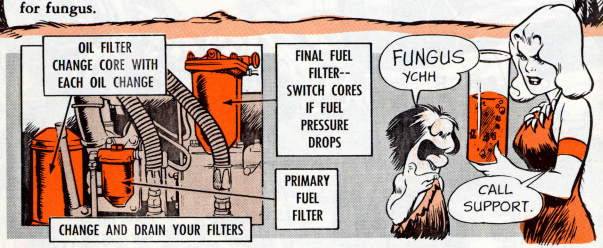

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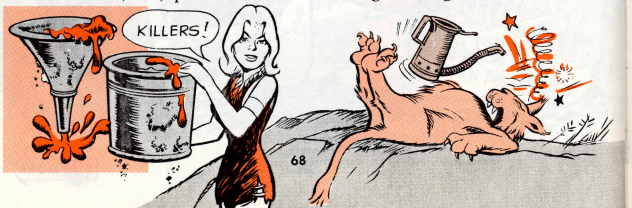
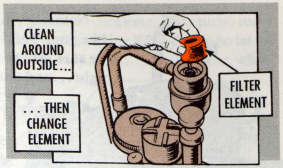
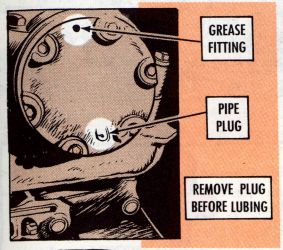


You've got a trashcan system to take care of—your oil filter. Change cores every time you change oil—but with this routine: drain the filter, clean the cover, clean off the case . . . **then** take the top off. Keep out blowing dust while you have it open. Then clean out your breather pipe.



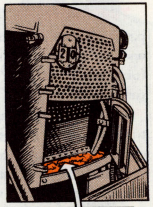


A lube fitting you can't forget is on each outer frame bearing cap. You take the pipe plug out of the cap **before** you shoot in lube, otherwise you'll blow the drive seal and get **real** trouble. Leaving it alone and failing to lube will get real trouble too—especially in Beautiful Southeast Asia. No matter what your LO says, look after it every 10 to 12 hours, depending on how dusty it is. Be sure, but certain, that the fitting is clean before grease goes in.

COOLING—That's Life No. 4, and it takes tongue-lickin' cleanliness too. Start up front with something as obvious as what's behind a Bikini—your radiator.

Dirt outside is the main pain here. Compressed air from your contact truck tank will help get out mud and trash between your radiator guards and the core, and if you're where you can, a backward wash with a water hose occasionally is no mistake.

Then get after the dirt-inside bit. Water can carry in mud and minerals—and salt is positively the worst, so look at the innards every couple of weeks even if you're not having overheat—just make sure nothing is sneaking up on you. A petcock test for mud while the radiator is hot is good insurance.



PS MORE

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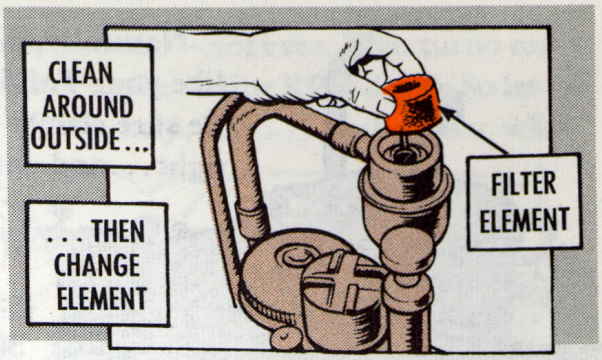

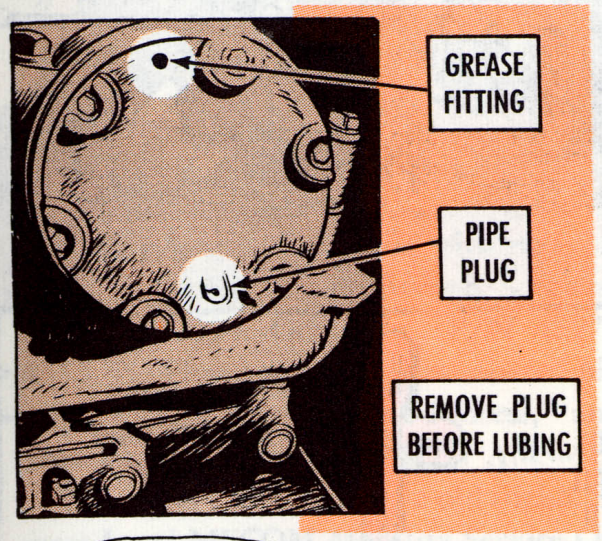

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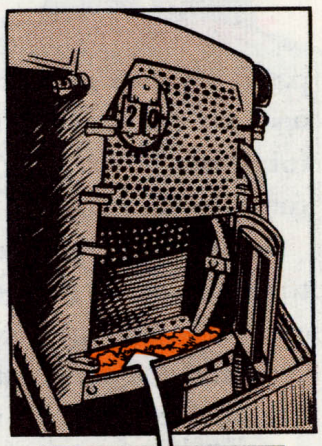
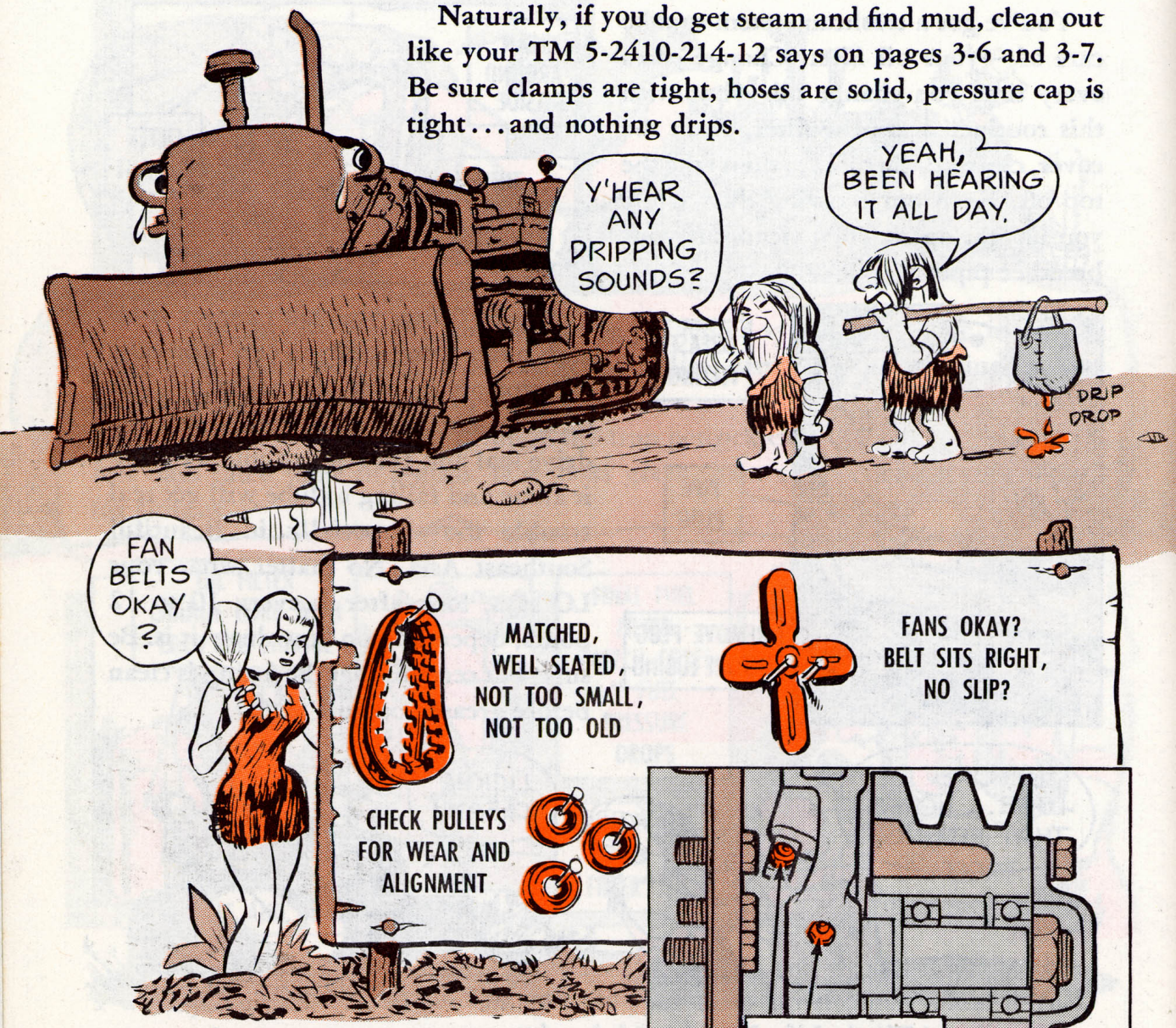


DIRT PACKS CORE AND GUARD

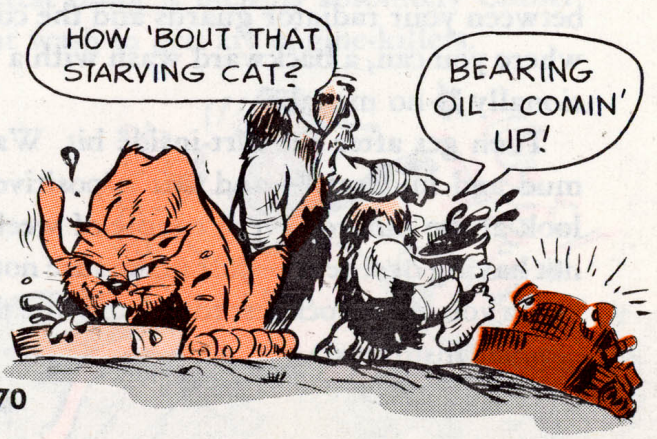
P.S MORE

Naturally, if you do get steam and find mud, clean out like your TM 5-2410-214-12 says on pages 3-6 and 3-7. Be sure clamps are tight, hoses are solid, pressure cap is tight . . . and nothing drips.

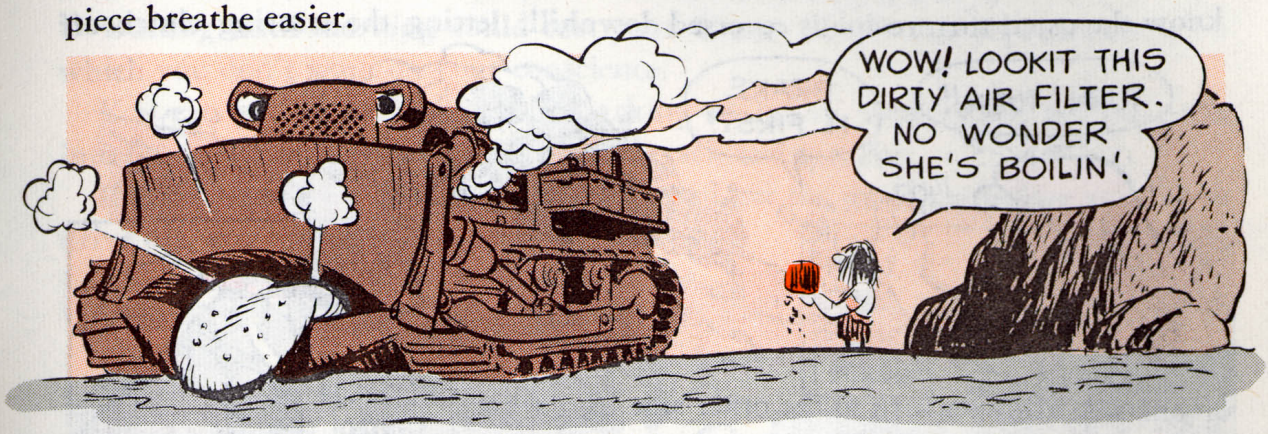


TURBOCHARGER — The gadget that packs air into your engine is Life No. 5 on your rat-eraser. Used right, it'll run for years. Mistreated, it can grind up in roughly 90 seconds.

Bearing oil starvation is the main turbo killer. It catches hold when you don't idle up right to start off or when you make a quick-stop shutdown. If you idle up s--l--o---w----l----y, 4 or 5 minutes, to start, and do the same when you park the rig, you'll be over the first hurdle.

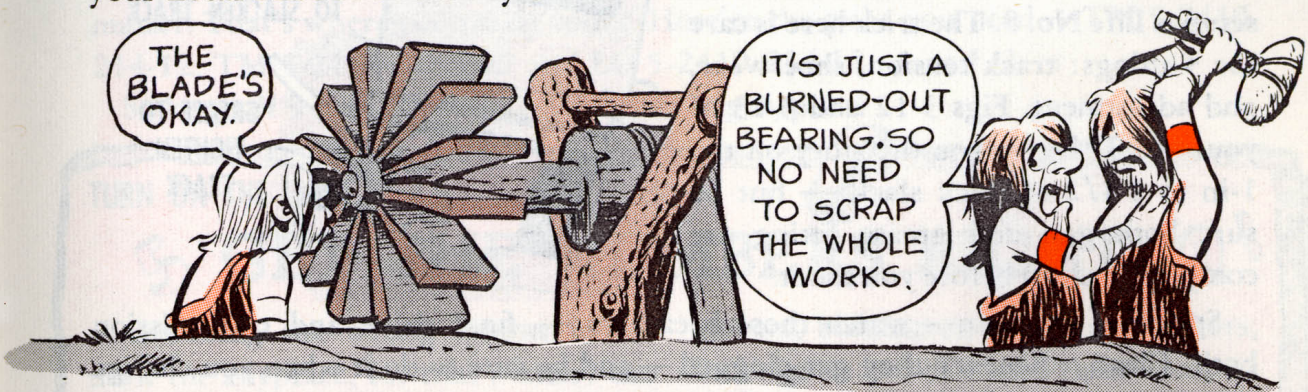


The second thing here is, no goosing the throttle—not ever. That turbo turns 14 miles a minute top speed, but doesn't slow as the engine RPM drops. So let oil pressure build or drop in steps. Clean air filters help, too . . . makes that whiz-piece breathe easier.



Turbo bearing burnout, with no other damage, can be (only $12.50!) mended with a new Kit, Turbocharger, Seal and Bearing (11083) P/N 3R8683, FSN 2950-247-9856. Otherwise, P/N 4S9705 (Code 11083), Turbo Assy, costs $355.35. That one is a part-numbered piece you get fastest on an exception-type requisition marked "Hand Process," and routed straight to U. S. Army Mobility Equipment Command, ATTN: AMSME-MCC, St. Louis, Mo. 63120.

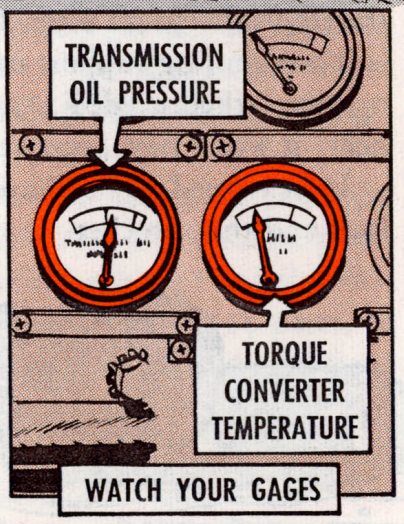
Then don't throw out the old turbo. Ship it back to that MECOM address or ask your Local MECOM Mobility Service Office where to leave it.



TRANSMISSION-CONVERTER—Here's Life No. 6. Overheating is the main trouble. That hits you mostly when you run in a gear too high for the job you're on and lug your torque converter.

One insurance is to watch your gages. An oil-pressure drop in your transmission or temperature jump in your converter will tell you to STOP, idle down, and check. If your transmission dipstick shows plenty of lube, 9 times in 10 you've been high-gearing.

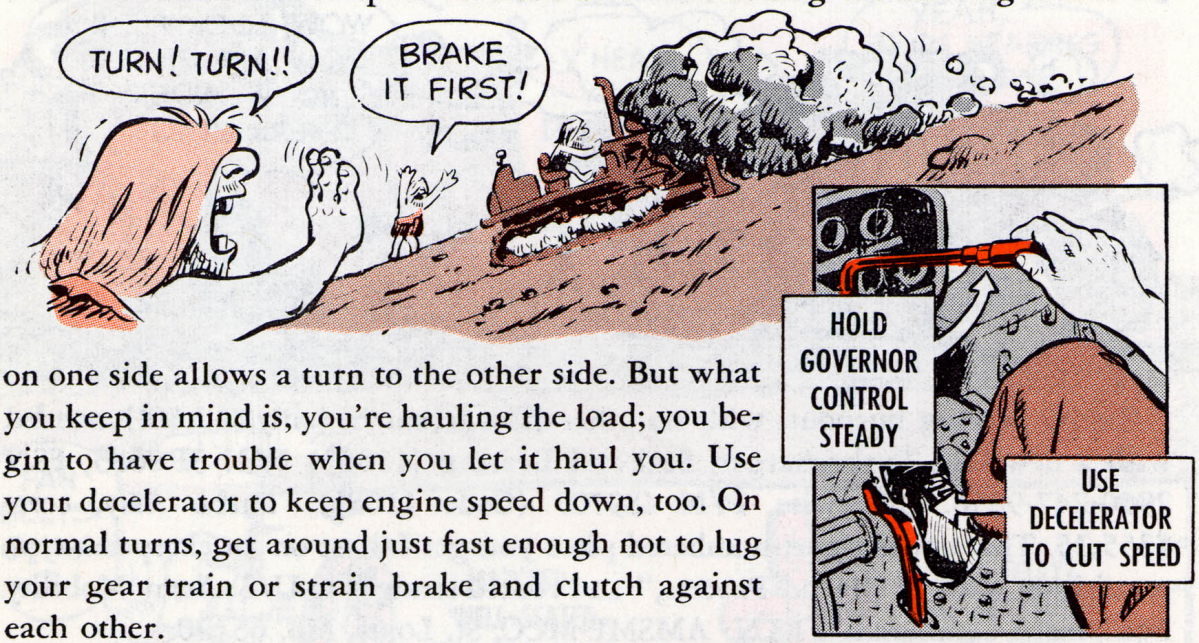
But if that's not the medicine and heat keeps hammering, get a support checkout. You could have a scavenge pump kaput.



P.S MORE

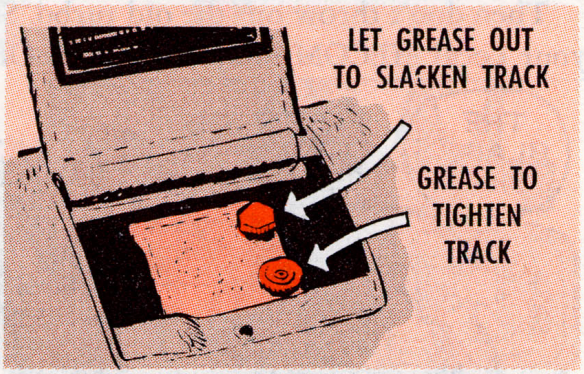
CLUTCH-BRAKE SYSTEM—Life No. 7 is no great trick to protect. Just keep away from downhill overspeed and brake-on snap turns.

If your load pushes your D7E downhill, brake back **before** turning—and you know the usual turn recipe is reversed downhill: letting the steering clutch off



on one side allows a turn to the other side. But what you keep in mind is, you're hauling the load; you begin to have trouble when you let it haul you. Use your decelerator to keep engine speed down, too. On normal turns, get around just fast enough not to lug your gear train or strain brake and clutch against each other.

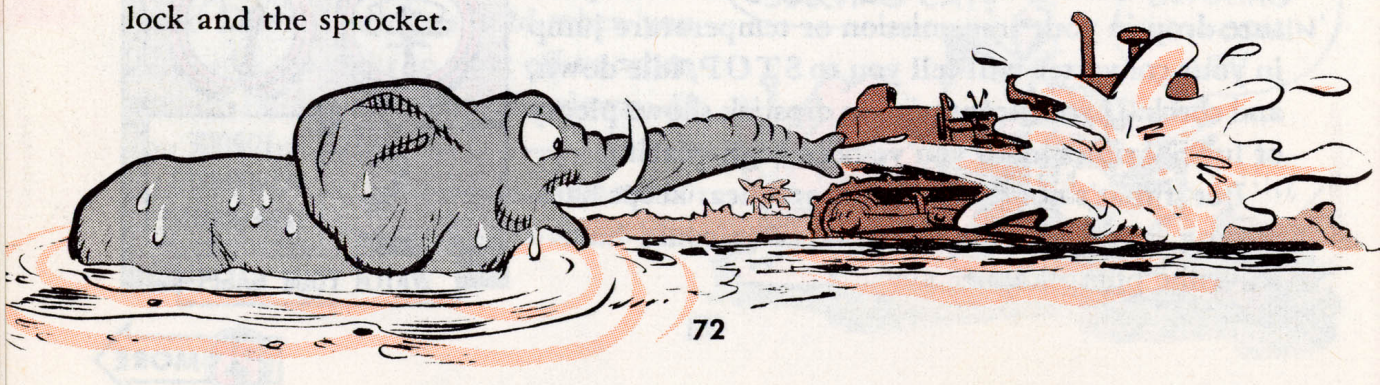
TRACKS—Your cat's paw-and-claw setup is Life No. 8. The trick here is care for 3 things: track tension, shoe wear, and adjustment. Figs 3-12 and 3-13 of your -12 TM give you the story on the 1-in to 1 1/2-in track slack — but be sure both gun and grease fitting are completely clean before you shoot.



Speaking of clean—watch those breathers — final drive and transmission both. Clean whenever they get clogged—and be sure to do it when you change the transmission oil filter. It's your big protection against seal failure.

Your smiling support can give you a measure job on track shoes and a rebuild or swap when needed. Anyway—forget about any track-switching stories you hear: it won't pay. Sprocket adjustment by the book helps stall off downtime.

In heavy red clay soil areas, wash out with a hose between your final drive ring lock and the sprocket.

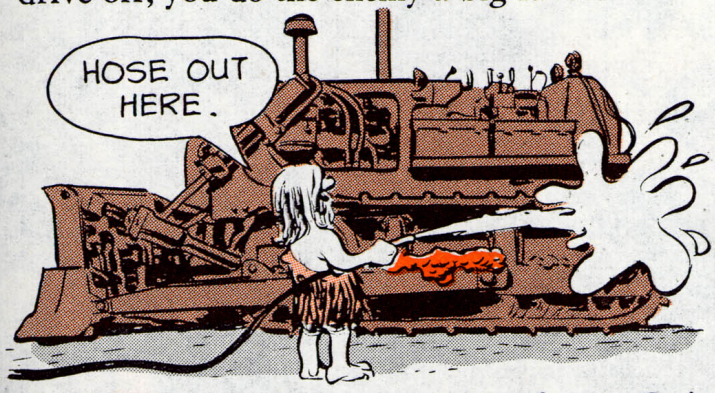


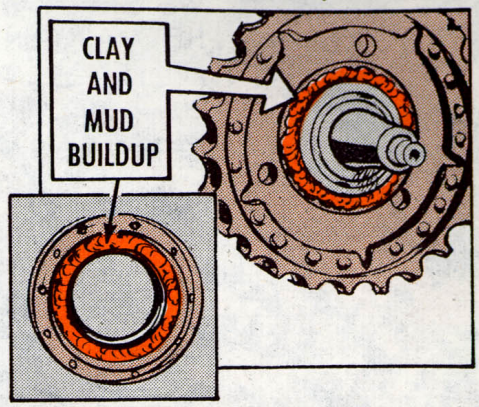
Do it when you end your shift—never wait until later. Overnight, that clay bakes into brick. Then, when you try to move, you either strip the adjusting lug or shaft threads, break the shaft, or ruin the whole final drive.

Waiting until morning could cost your Uncle $4,000 for replacement . . . which you don't want on your conscience.

You can get the same result by parking in heavy mud so the tractor sinks into the goo. Then the stuff dries around track and sprocket.

If you don't take a crowbar or pry tool and get the guck out before you try to drive off, you do the enemy a big favor.





PUBS—This is the 9th piece of your Cat's life story, and it rings in all the others. Here is the know-how you have to have. If you're short on books, keep pressuring for 'em. Your D7E has no brain of its own, so you have to be the gray matter. That's where you **really** count. Here're the pubs you need—TM 5-2410-214-12, TM 5-2410-214-20P and LO 5-2410-214-12, -1 and -2.

So keep all 9 lives healthy . . . and purr, tiger, purr!

TURN ON THE LIGHT . . .

GET THE NUMBERS RIGHT

Grabbing the wrong femme in the dark (or anyplace, for that matter) can get you a mild pain in the jaw.

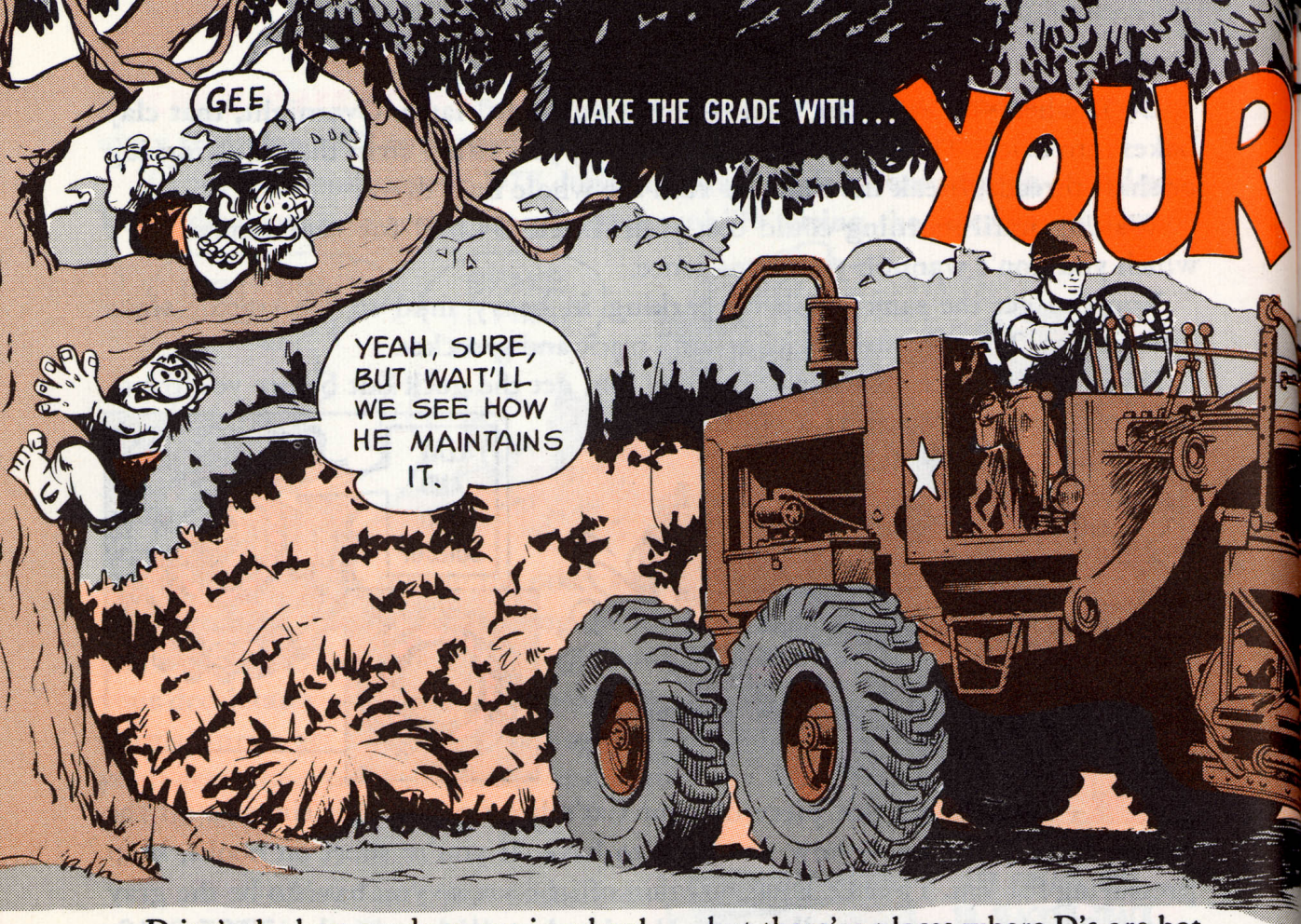
And leaving your support in the dark with wrong serial numbers can give your maintenance a pain.

The thing is, lots of end items have atachments with data plates and serial numbers—so just grabbing off the first number you find may give no light at all. The model and serial numbers of the major item itself are not enough to identify all the components of a unit.

Such equipment as power units, earthmovers, bulldozers, tractors, wreckers, fuel rigs—lots of stuff—may carry as many as 5 or 6 data plates with separate serial numbers for hydraulics, cable controls, special blades, winches, scrapers, etc.

So make sure the data plate you copy from is for the item you need help on. Whether you're writing for help, filling TAERS forms, looking up parts, or whatever—mox nix. Turn on the light with the right serial dope.

As the manufacturers say: When you're specific, our support's terrific!



D isn't the best grade to get in school . . . but there're places where D's are hot on the scene. Like on that new 440HA grader—because D stands for 2 things: Diesel, and Different. Get with those D's and you'll switch onto the action.

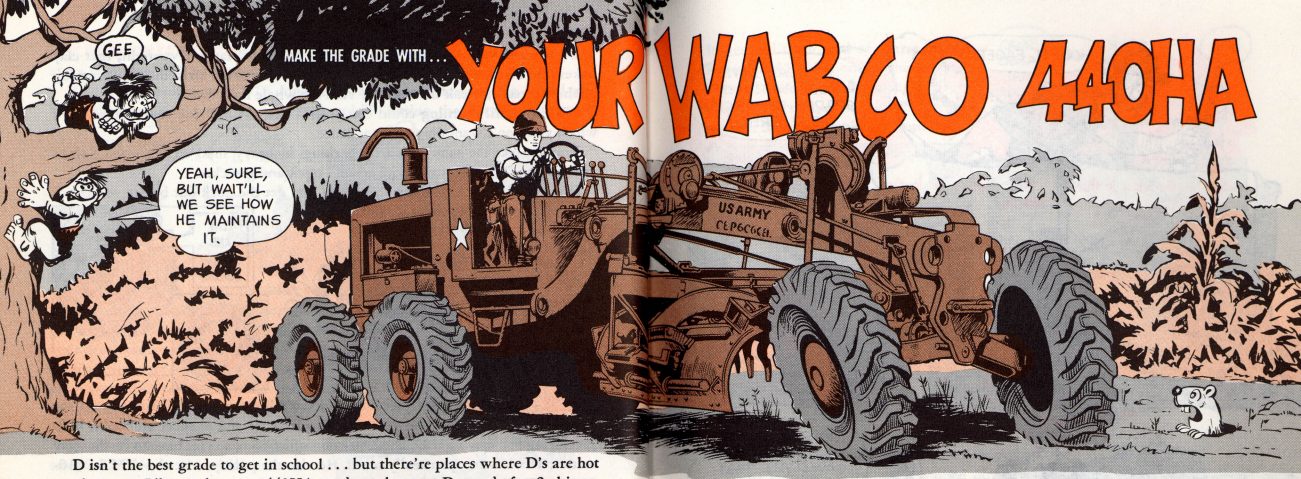
First thing, this Wabco is Diesel, which means forget most of the gasoline-engine book.

For instance, where your TM says "at operating temperature" in the start-up, it means 160° or better (except in Far North) on that coolant temp gage.

Even in tropics, shortcutting is unsmart . . . 115° in the shade may be hot to you, but it's chilly to your engine.

Carbon and varnish hide out on guides and stems and rings of cold engines like snipers in spider holes. Good warmup shoots down that kind of trouble, and it gets the lube oil to the vitals besides. So make sure you're up to the 160° operating temperature before you move out.

Those gages read 15° to 20° low in sub-zero climate. So there's a D for Difference—go through the TM-12 cold-weather drill (para 2-15), make sure your weather closure is good . . . and when your gage has been on 140° to 145° a couple of minutes, you're safe.



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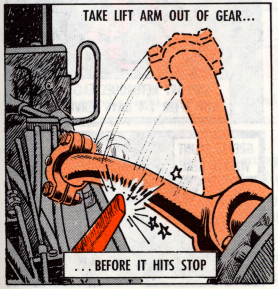
WATCH THAT ENTHUSIASM

These Wabcos can be kinda fun to run—but don't let excess joy get the best of you. Even taking off from parking can be dangerous—

Like, when you raise your blade, watch your blade lift arms. Keep the left lift arms to the outboard side of top center for normal grading operations.

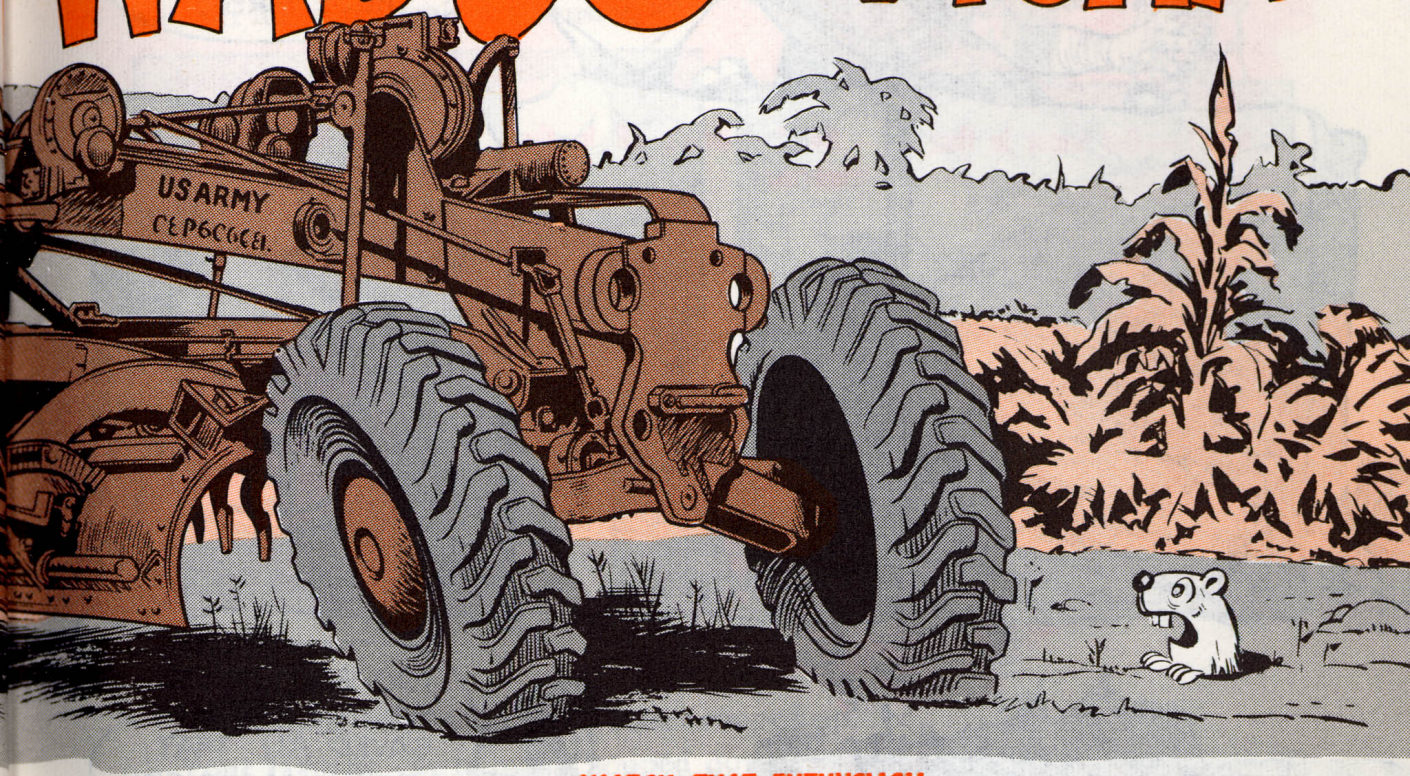


When using your 440HA for bank sloping operations, it's OK to move the left arms past top center; in fact, it's necessary during this operation. If you operate with the left lift arms inboard of top center during normal grading operations, you can very easily ram the left hand blade link into the leaning wheel control shaft.

Otherwise, you can bend the shaft . . . or snap the linkage . . . and there you'll go, wobblin' off to unnecessary down-time.

PS MORE

WABCO 440HA



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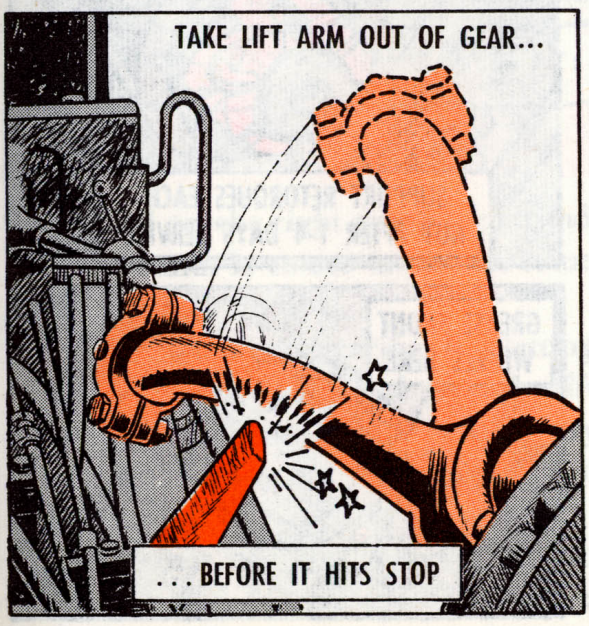
These Wabcos can be kinda fun to run—but don't let excess joy get the best of you. Even taking off from parking can be dangerous—

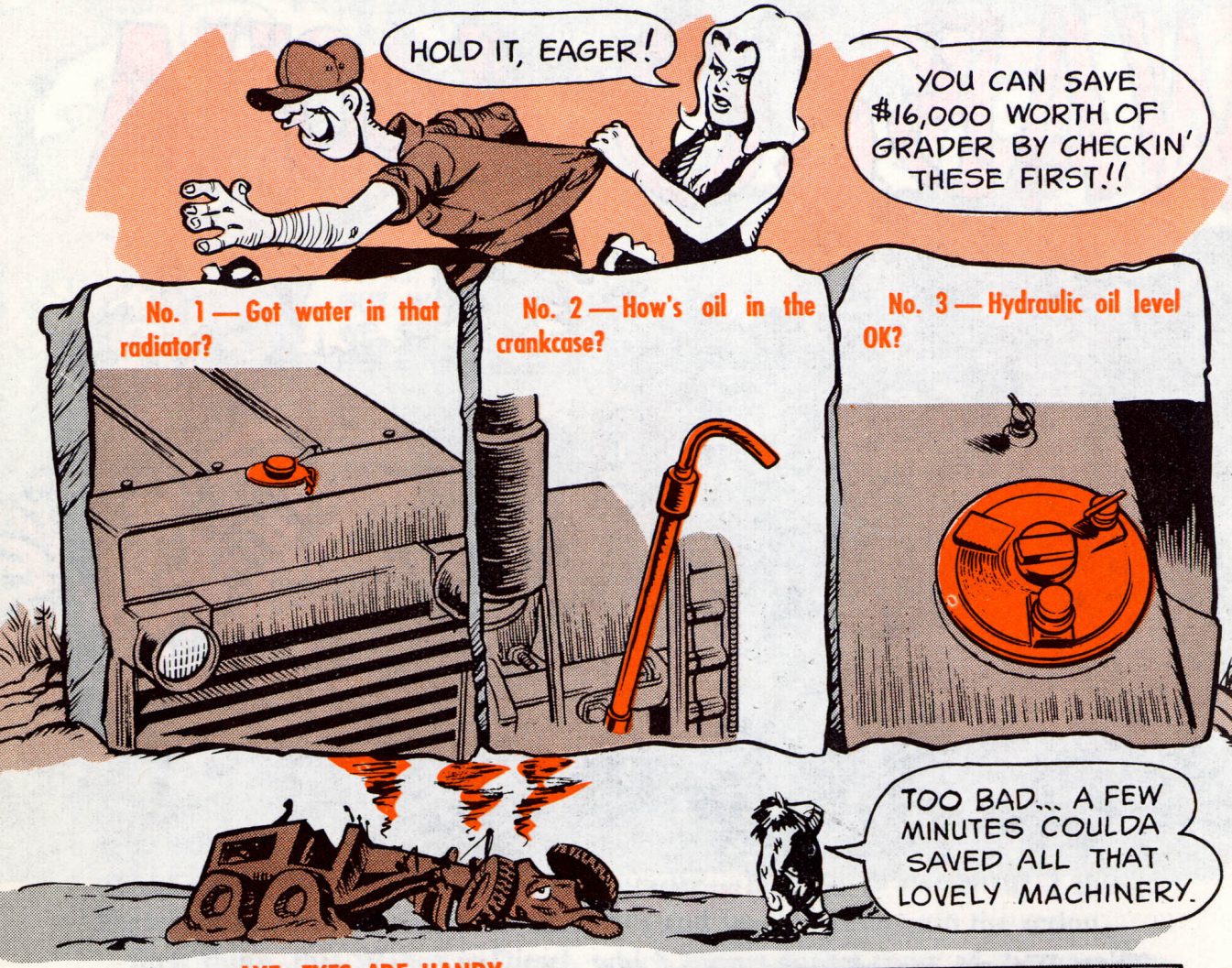
Like, when you raise your blade, watch your blade lift arms. Keep the left lift arms to the outboard side of top center for normal grading operations.



When using your 440HA for bank sloping operations, it's OK to move the left arms past top center; in fact, it's necessary during this operation. If you operate with the left lift arms inboard of top center during normal grading operations, you can very easily ram the left hand blade link into the leaning wheel control shaft.

Otherwise, you can bend the shaft . . . or snap the linkage . . . and there you'll go, wobblin' off to unnecessary down-time.

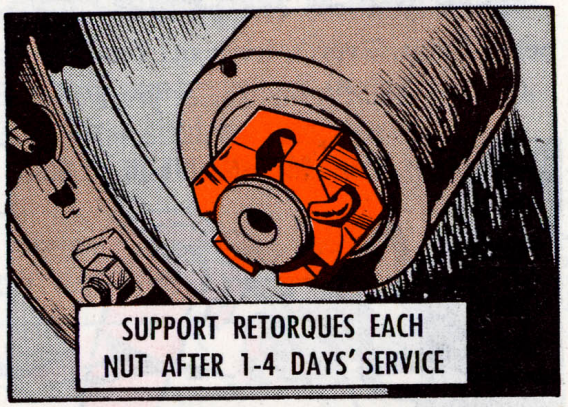
P.S MORE

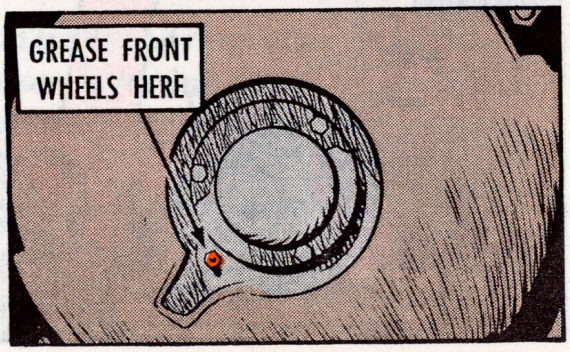


AYE, EYES ARE HANDY

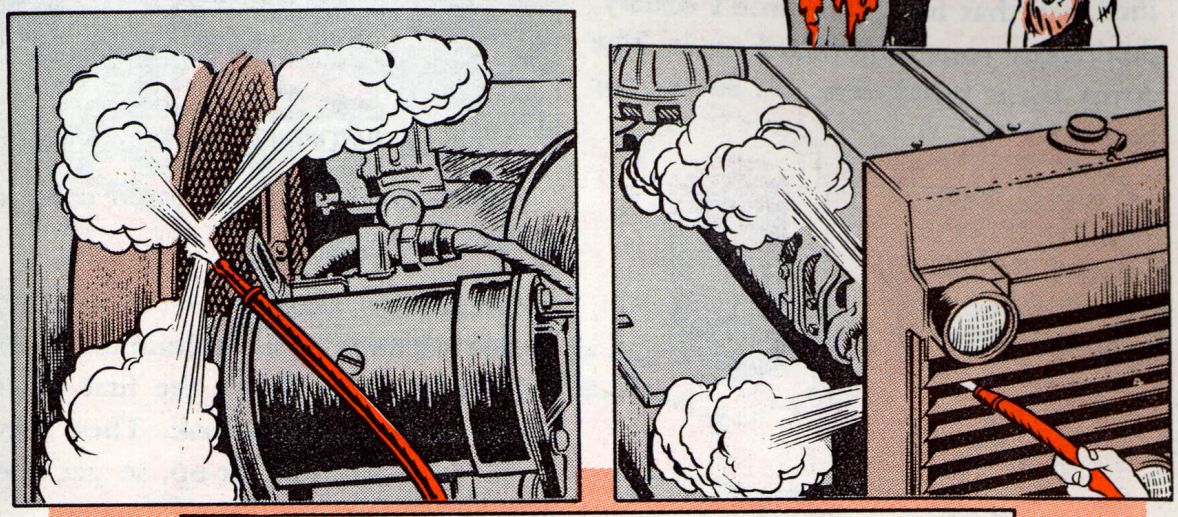
That neck-saving gaze can help you on a pair of other places, too. One of them is another new-machine checkover bit, only for this'n you wait 'till your 440 has been run 3 days or so — not less'n 1 or over 4, that is. Then have your support unit mechanic retorque your tandem wheel hub nuts. The right out-of-gear figure is 600 lb-ft. Be sure your front wheel bearings ride snug, too.

The other look-at-often is your cooling system. Look and clean when needed with an air hose. If you can make it without splashing hot pipes and electrical equipment use a water hose every now and then. Keep mud, oily sand,





leaves and trash, and of course all old worn-out $10 bills out of the radiator fins and honeycomb air passages. Every time you do that, clean the breather cap on your lower transmission housing.



BLOW OUT THE JUNK, USE LOW PRESSURE AIR AND WEAR GOGGLES

NO SOUP ON THE MENU

Never think your 440 can do better souped up.

Your favorite Uncle had it souped down. A bigger injector or a jazzed-up governor will only add heat, and heat means trouble.

There's a chance—but slim—that you might get a Wabco-type with an old-style hydraulic pump. If you do, you're in trouble.

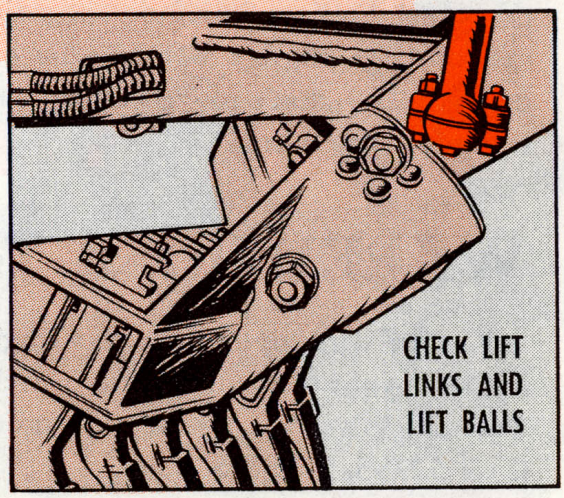
So requisition from page 7 of that fold-in section of your factory manual labeled "Draft List of Stock Type Items."

```
3805-071-2657  PUMP ASSEMBLY:  hydraulic  (35311) 403975
```

You'll get the right pump the second time around. It comes under the same FSN the old 'un did.

Take care of your scarifier like letting your wrench wielders look after the lift links, drawbar pins, and lift balls every time you find any part worn over 1/5 of the way thru.

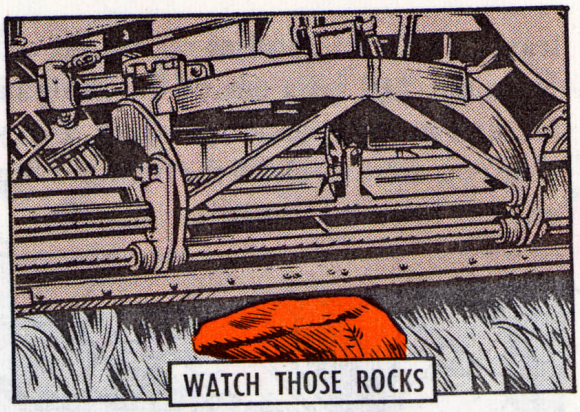
But what you really watch is your moldboard. You can replace a boot, a



P.S MORE

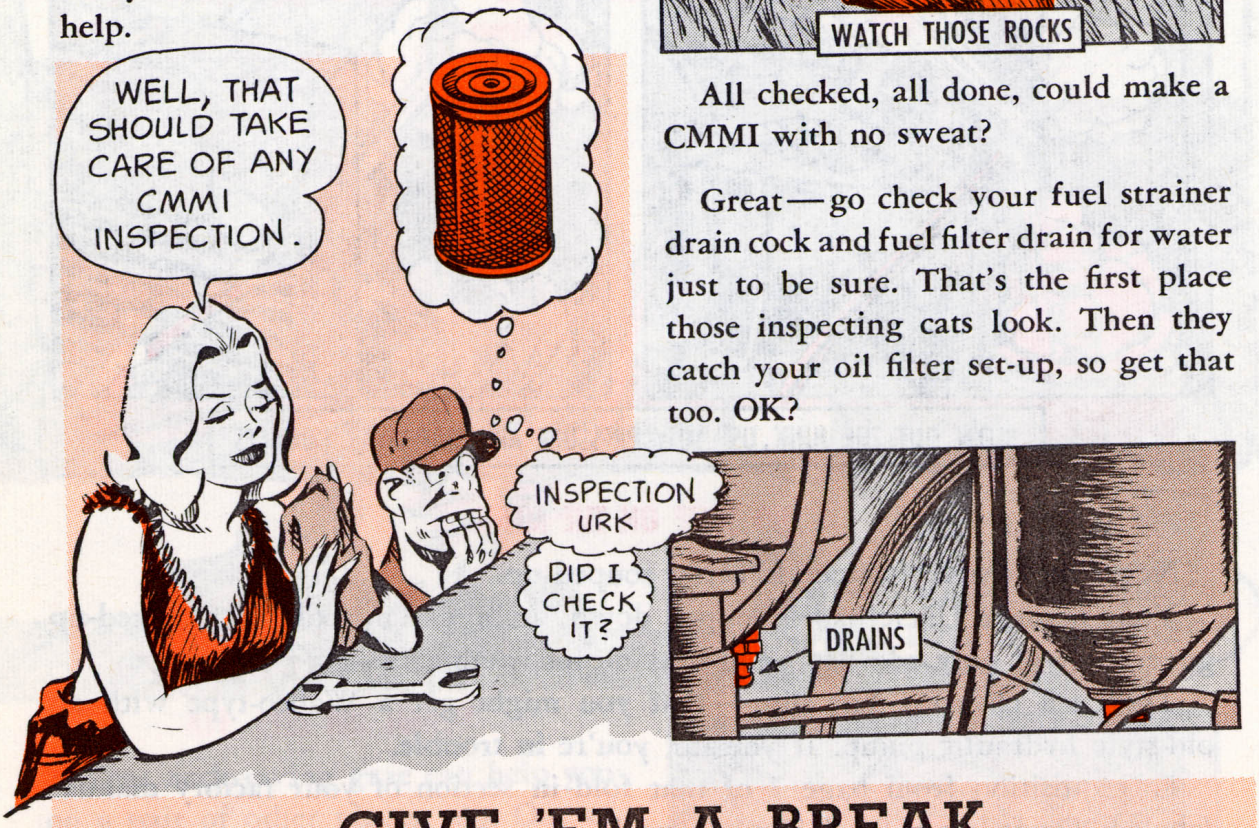
blade, or even the whole moldboard . . . but banging into big rocks is a great way to bust up your circle . . . the big round steel suspension for the whole digger.

If you find rock that hasn't been scarified, try that first. If it won't scarify, don't bust your moldboard on it. The Army owns bulldozers . . . so ask for help.



All checked, all done, could make a CMMI with no sweat?

Great—go check your fuel strainer drain cock and fuel filter drain for water just to be sure. That's the first place those inspecting cats look. Then they catch your oil filter set-up, so get that too. OK?



GIVE 'EM A BREAK

You can stop parking brake failures on that LARC-V. Just put your trust in the word, "adjust," and do the adjusting like TM 55-1930-205-20 (Apr 66) says on page 48, figs 3-48 and 3-49, using the lever knob to take out slack. One big help is—don't move out with the parking brake engaged. You might have to replace the lining.

WAREHOUSE TRAILER HUB CAPS

Keepin' dirt out of wheel bearings can be a problem if the hub caps are missing from your 6000-lb capacity warehouse platform trailer, FSN 3920-856-1342. You can solve that problem by ordering Caps, hub, FSN 2530-679-4512, Mfr. Code 52793, Part No. 6394.

WELDING BOOTH PAINT

Dear Editor,

Healthwise, not just any paint will do for a welding area or booth.

The right kind of paint is needed to reduce the hazard of eye burn for individuals in the area. It doesn't have to be a costly, special covering, but the paint should be lustreless or flat, so the welding arc won't be reflected, and it should reflect a minimum of ultraviolet radiation from the arc.

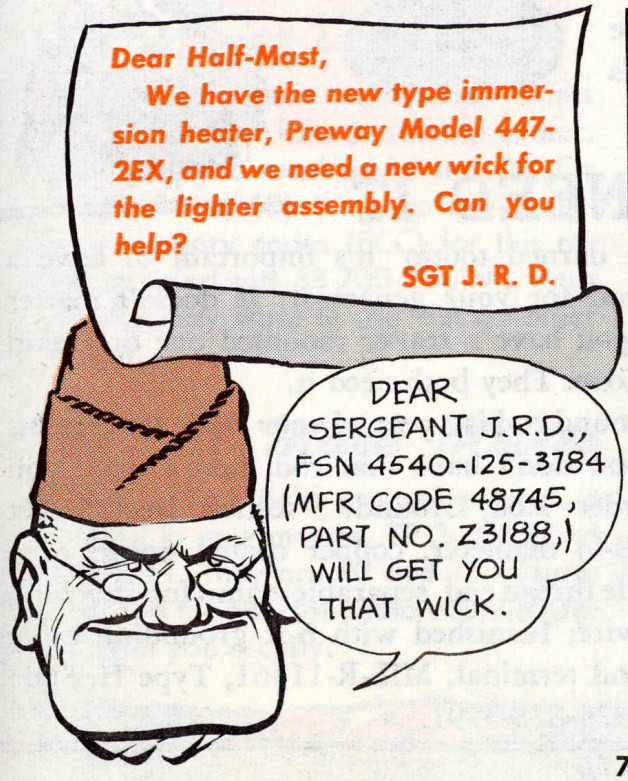
The following paints meet the safety requirements. They're available in the supply system from GSA in 1-gal cans:

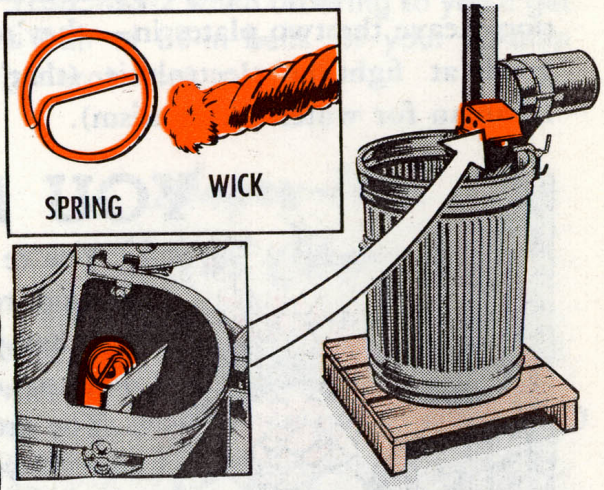
Light Gray (36449)	FSN 8010-515-0800	Gull Gray (36231)	FSN 8010-584-3059
Medium Gray (36321)	FSN 8010-664-3365	Dark Gray (36118)	FSN 8010-900-1622
Gray Blue (36231)	FSN 8010-297-0802	Sea Gray (36118)	FSN 8010-597-7840

James J. McLeskey
Merrill Cohen
Aberdeen Proving Ground, Md.

(Ed Note—Thanks. Also, remember that good ventilation is real important in a welding area.)

IMMERSION HEATER WICK



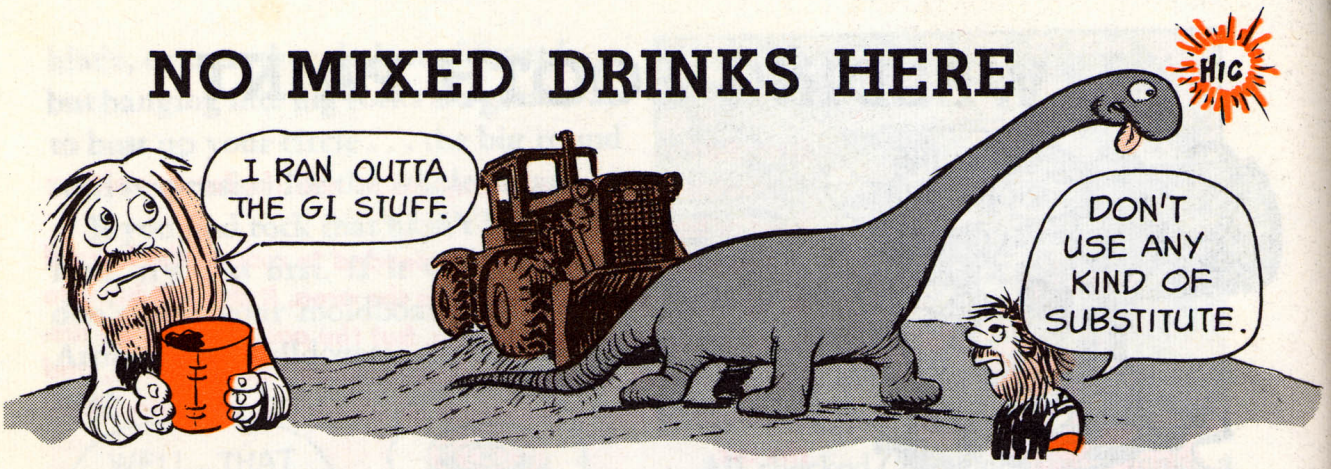


If you need the complete lighter assembly ask for FSN 4540-129-3241 (Part No. Y11683).

FSN 4540-124-7132 (Part No. K12810) gets you the spring for the lighter assembly.

Half-Mast

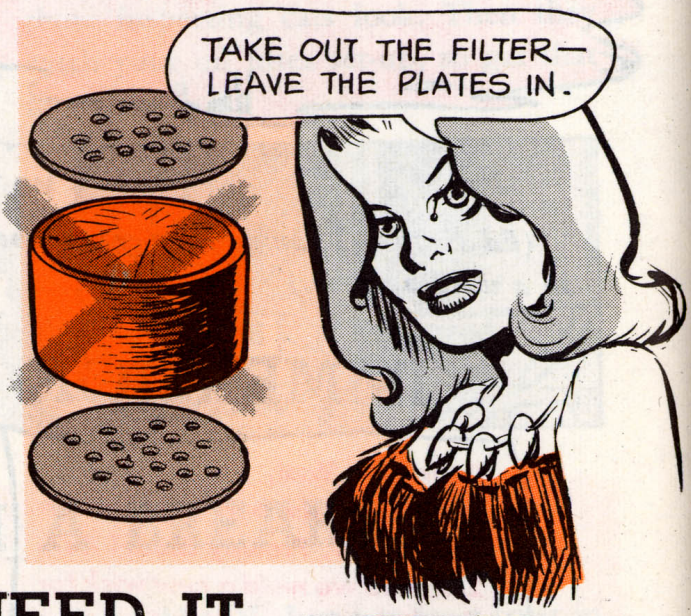
NO MIXED DRINKS HERE



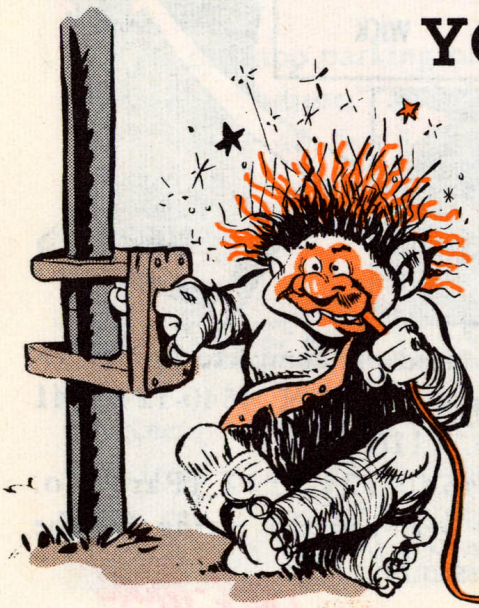
Yep —'tis true — you keep antifreeze in your carrier engine on the Model 2380 rough terrain crane--and in the crane engine too . . . winter and summer, tropics and Arctic circle, makes no difference where you are.

And in your chromate corrosion resistor, you use nothing, but nothing as a substitute for FSN 2930-929-5501. If you run out of antifreeze and just have to use water, no filter at all is better than what's been around up to now. In any case, you never let the Perry chromate filter sack (Item 23, Fig 46, TM 5-2420-206-35P) touch your antifreeze solution. Leave the two plates in—they're good at fighting electrolysis (that's Irbanian for water rheumatism).

The same thing goes for your 290M tractor, too—it wants antifreeze the year round, and no Perry chromate sack in the filter. This word is on page 38 of TB 750-971-1 (Feb 68).



YOU NEED IT



You're darned tootin' it's important to have a ground rod for your generator. It doesn't matter whether you have a trailer mounted one or a skid mounted one. They both need it.

The ground rod is a part of your Basic Issue Items List. If you don't have that rod, here's what you should order: Rod, Ground: 3 section, steel, 9 feet long, 5/8-in diameter, copper coated finish; cone point; male thread end, separable clamp for attaching ground wire; furnished with 6-ft grounding cable and ground terminal, MIL-R-11461, Type II, Style 2, FSN 5975-878-3791.

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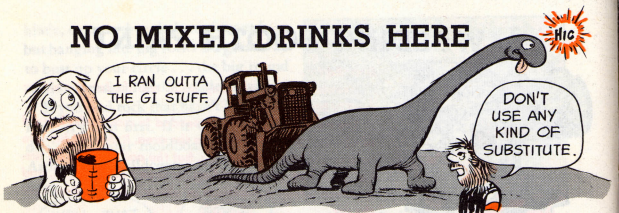

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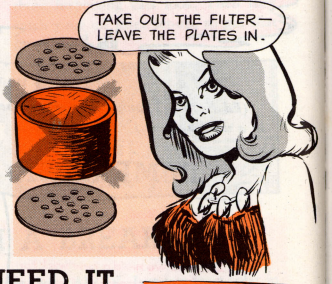

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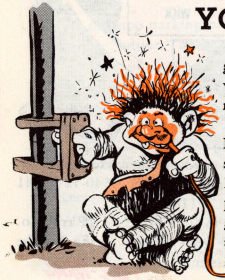

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Connie Rodd's BRIEFS

Stubbed Sore Thumb

That "sore thumb" sentence on page 25 of PS 199 identifies the M16A1's sear **spring** as sear pin and so does the picture down below. Make it read spring instead of pin both places. It might save Half-Mast from getting a sore thumb answering letters about it.

Old Lin's to New

Is your SB 700-20 suffering from an appendectomy? Appendix II has been removed or maybe it didn't have one, and you need it because it's a cross-reference from old line item numbers to new. You can solve your problem by using SB 700-22, (Apr 69) Cross Reference Old, Line Item Numbers to New Army Line Item Numbers.

ECC For DA 2406

Before your next materiel readiness report (DA 2406) falls due in September, make sure you read and heed DA Cir 750-29 (9 May 69). It sets up new equipment category codes (ECC) for this report, coupled with SB 700-20 LIN's. Your CO also may want to use 'em on other records.

M17A1 Mask Movies

The M17A1 field protective mask is covered in new movies, TF 3-4060 and TF 3-4061. They are 10 and 11 minutes long, and the nearest audio visual center can loan you a copy.

Gift Horses Can Bite

Even if you get some other lube as a gift in Vietnam, never use anything but LSA on your M16A1 rifle. LSA's THE ONLY LUBE AUTHORIZED for the temperature range in RVN. Remember: LSA . . . MIL-L-46000A. FSN 9150-935-6597 fetches you a 2-oz plastic bottle.

Belts For M151

Back off on that PS 200 info about generator belts for your M151 (or other G838-series ¼-ton vehicle). That FSN 3030-756-8390 gets you only 1 belt. You're s'posed to replace belts in sets, so stick with FSN 3030-833-1297 in your TM 9-2320-218-20P w/Ch 1 (Feb 69). But be sure to specify Part No. MS 51065-**33**-2 when ordering so you'll get a pair of 33-in belts for your 25-amp generator setup.

Angry-106 FSN Changes

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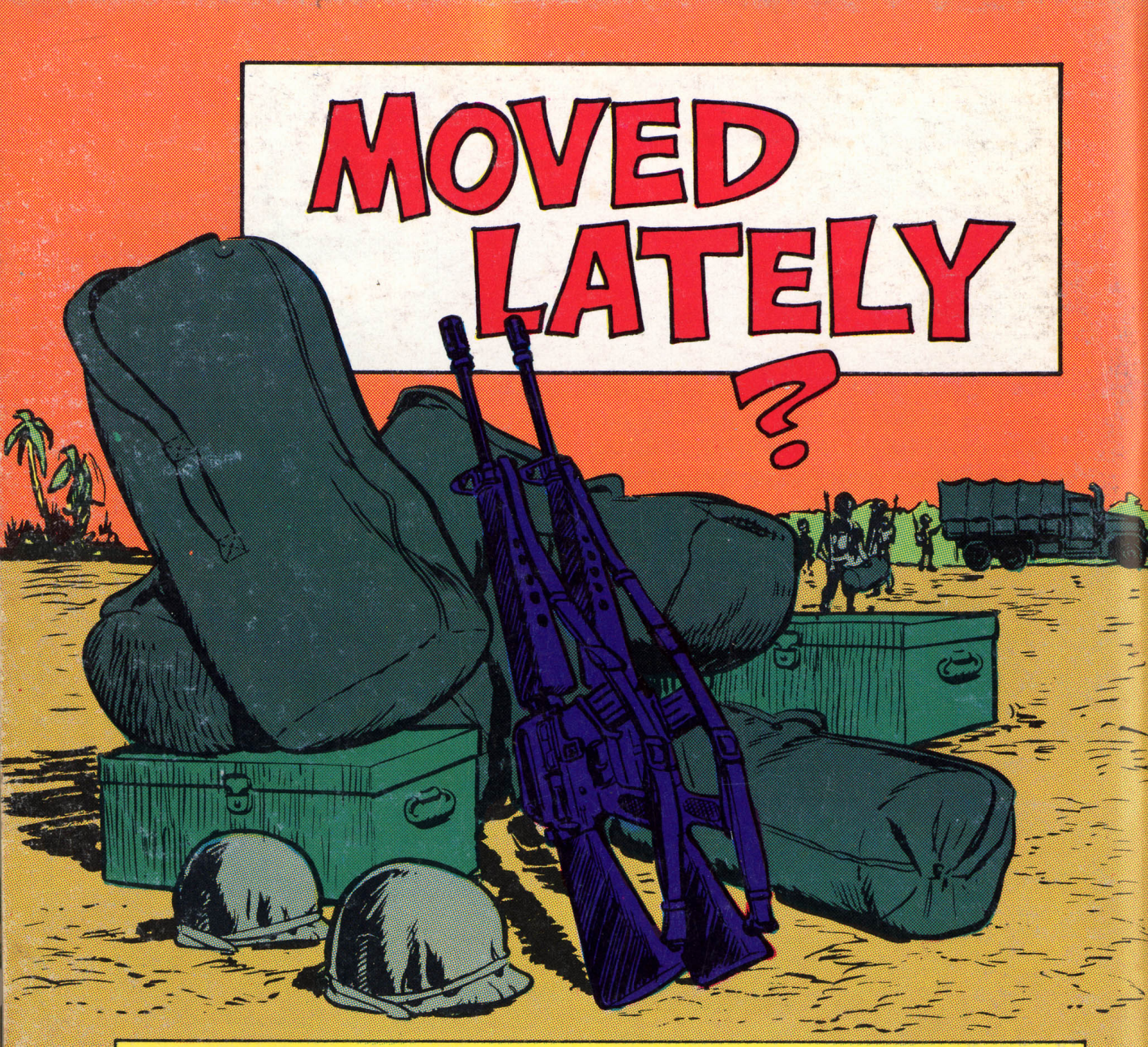
MOVED LATELY?



If your unit's just changed its address or is about to . . .
Be sure the pub centers (St. Louis & Baltimore) are notified at once!
This will assure you of an unbroken flow of vital publications.
You can't get pubs if you're not there!

TELL THE PUB CENTERS